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THE AMERICAN YEAR BOOK

A Record of Events and Progress

YEAR 1947

EDITOR

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PREFACE

The feature of the year 1947 which most clearly emerges from the reports of events and progress in this issue of THE AMERICAN YEAR BOOK is that the world has embarked on an era of peace. This is not to say that peace has been achieved nor that peace is in immediate prospect in the sense of formal treaty making; it is to say that the world was preoccupied, in deadly earnest, in striving for peace in 1947. It must achieve peace if it is to survive.

The cleavage that exists between the conflicting ideologies of Russia and her satellites, on the one hand, and the Western democracies, on the other, now seems to be the chief stumbling block, yet the existence of such a cleavage is a ringing challenge to wise and patient statesmanship. Nowhere is the impact of this challenge more evident than in this country. It challenges us to defend ourselves should the necessity arise. It challenges us to temper our acute consciousness of the Atomic Age. It challenges our social and humanitarian awareness of the obligation to help a starving world and to defend the outermost ramparts of what we most believe in—the freedom, the dignity, and the general well-being of the individual. This is why the Marshall Plan looms so large in the 1947 report in this volume; it exemplifies all these things.

We are challenged, too, in our fiscal resources. Approximately 85 per cent of Federal expenditures in the fiscal year 1947 "directly reflected the costs of the war, the effects of war, and efforts to prevent a future war." (See "National Finance and the Public Debt.") It is estimated that these costs in 1948 will approximate 80 per cent, and, in 1949, 79 per cent. In his January 1948 budget message to Congress, President Truman stated that such a large proportion of expenditures "should be a sobering thought to all of us as we strive for lasting peace among the nations of the world."

Thus, the emphasis in the political, economic, and financial fields is on the necessity of striving for and achieving peace. Meanwhile, in the social, religious, and scientific fields, and in the humanities, this country has made substantial progress in working back to pre-war conditions and activities, in addition to taking care of current activities arising from new developments and certain old war burdens. The year 1947 was a year of severe trial and challenge; it was also a year of definite and steady progress, not always in the sense of forging ahead, but often in the sense of holding back threatened dangers such as those implicit in supply and demand of basic products, in the necessity for controlling prices and avoiding inflation, and in the ever present menace of want of balance in labor relations. These and the other factors recorded in this volume constitute the source material of our running history.

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THE AMERICAN YEAR BOOK

THE AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

PART ONE

POLITICAL—NATIONAL AND INTERNATIONAL

DIVISION I

AMERICAN POLITICAL HISTORY

THE PRESIDENT AND HIS POLICIES

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STATE OF THE UNION

In his address to Congress on the state of the Union, delivered Jan. 6, 1947, President Truman emphasized the need for harmony between Congress and the President in the conduct of international and domestic affairs. With respect to domestic economy, he pointed out that the country was in a very prosperous condition. He promised that remaining emergency controls exercised by the Federal Government during the war would be retained only so long as needed to protect the public. He urged industry to hold the line in existing prices and to make reductions whenever profits justified such action; and he likewise asked labor to refrain from pressing for unjustified wage increases that would force increases in the price level.

The President outlined five major economic policies which he believed the Government should pursue during 1947. These policies were: First, promotion of greater harmony between labor and management; second, restriction of monopoly and unfair business practices, assistance to small business, and the promotion of the free competitive system of private enterprise; third, continuation of an aggressive program of home construction; fourth, the balancing of the budget in the next fiscal year, and the achieving of a substantial surplus to be applied to the reduction of the public debt; fifth, protection of a fair level of return to farmers in post-war agriculture.

In connection with labor, the President condemned jurisdictional strikes, certain types of secondary boycotts, and the use of economic force, by either labor or management, to decide issues arising out of the interpretation of existing contracts. He urged the extension of the facilities within the Department of Labor for assisting collective bargaining, the broadening of the program of social legislation to alleviate the causes of workers' insecurity, and the appointment of a Temporary Joint Commission to inquire into the entire field of labor-management relations.

In the field of health and general welfare, the President recommended the establishment of a well-integrated Department of Welfare.

Referring to foreign affairs, President Truman reported that peace treaties for Italy, Bulgaria, Rumania, and Hungary had been prepared and would be submitted to the Senate for ratification. He said that we had made it clear that we would not retreat to isolationism. So far as differences between the United States and Soviet Russia were concerned, he said that our policy was guided by the same principles which determined our policies toward other nations: namely, to uphold the principles of international justice embodied in the Charter of the United Nations.

Expressing the opinion that the United States had not done its part in admitting displaced persons, the President asked Congress to turn its attention to this problem. He said we must take steps for the reconstruction of world trade as free from obstructions as possible.

Denying that the United States sought a monopoly of atomic energy, President Truman said we asked only that there be safeguards sufficient to insure that no nation would be able to use atomic power for military purposes. He looked to the Atomic Energy Commission to foster the development of atomic energy for industrial use and scientific and medical research.

In discussing military policy, the President stressed the need of well-equipped, well-trained forces, with a citizen reserve based on universal training. As one way to cut military costs and enhance the national security, he favored the establishment of a single Department of National Defense. Above national security, h placed collective security for all mankind as our goal.

ECONOMIC REPORT

The first Economic Report of th President to Congress under the Employment Act of 1946 was made b President Truman Jan. 7, 1947. H asserted that lower consumer prices avoidance of general wage increases and tranquility in labor-managemen relations were required if the countr was to continue enjoying its recor prosperity through 1947. He propose the continuation of taxes on wartim levels, extension of rent controls, increased social security benefits, highe statutory minimum wages, extensio of the wage-hour law to new group of workers, a long-range housing program, and labor controls—suggestion previously made in the State of th Union message. Other proposals included health, sickness and disabilit insurance, and a suggestion that part of social security costs b financed from general taxation.

Taking note of widespread fears o another depression, the President rejected the notion that we must hav one. He said that he had directed th Council of Economic Advisers an other appropriate government agencies to make a continuing study o the stabilization devices that migh become necessary and to recommen their being placed in operation i ample time to insure the anticipate effect. Among these devices he liste a well-integrated program of employment stabilization: improvements i the process by which workers fin jobs and employers find workers; improvements in the tax structure; wise management of the public debt; and a flexible credit policy.

PEAK PROSPERITY

In a special mid-year edition o his annual report to Congress on the economic welfare of the country issued July 21, President Truma traced the emergence from wartime controls and stated that production employment, and national income stood at peak levels. He asserted that the American economy was experiencing unprecedented prosperity but warned that the economic situation was being shored up by a backlog of pent-up demand from consumers, and that a number of basic economic adjustments must take place to forestall grave unemployment and costly business depression.

BUDGET MESSAGE

On Jan. 10, 1947, the President's Budget Message was presented to Congress. Estimating expenditures under existing and proposed legislation at $37,500,000,000 and revenues under existing laws at $37,700,000,000, President Truman recommended early action by Congress to continue the war excise-tax rates and an increase in postal rates sufficient to make up the postal deficit. He declared there was no justification for tax reduction.

In summarizing expenditures, the President pointed out that five items —interest on the national debt, tax refunds, national defense, international affairs, and veterans' service and benefits—totaled $29,200,000,000, or almost four-fifths of the Budget. Admitting that the period of large-scale general relief for our allies was almost over, he urged Congress to provide adequate support for the International Refugee Organization under the United Nations, and to authorize participation in the World Health Organization and the proposed International Trade Organization.

With the object of promoting social welfare, the President favored the creation of a Cabinet department of health, education, and social security to supersede the Federal Security Agency. He urged the extension of the unemployment compensation program to cover agricultural workers, public employees, and other excluded groups, as well as a health-insurance program which would make adequate medical care available to everyone.

In the housing program, the President said we would continue to rely primarily upon private housing construction. In education, he favored basic legislation under which the Federal Government would supplement the resources of the states to assist them to equalize educational opportunities and achieve satisfactory educational standards. To foster the flow of scientific knowledge, he recommended a National Science Foundation, or its equivalent.

The President said we should shift our agricultural policy from subsidies to providing technical guidance to all farmers for soil conservation and management. In order to push forward basic research in the use of atomic energy, he recommended a program involving expenditures of $444,000,000 in the fiscal year 1948. He also recommended that Congress extend the authority for rent control; price control on sugar, sirups, and rice; sugar rationing; export and import controls; priority and allocation controls on a few commodities still in short supply; and a few other minimum controls. He urged the strengthening of peacetime regulatory agencies, such as the Federal Trade Commission, the Federal Power Commission, the Antitrust Division, and the Tariff Commission. He recommended that Congress authorize grants to states through the Department of Labor for programs fostering safe work conditions, the new program to be administered by state departments of labor under Federal standards.

MID-YEAR BUDGET REVIEW

On Aug. 20, President Truman submitted to Congress his annual mid-year review of the budget. On the basis of estimates of expenditures and receipts of the Federal Government during the fiscal year ending June 30, 1948, a budget surplus of $4,700,000,000 was indicated. He declared that the surplus, together with part of the present cash balance, would be devoted to the retirement of the public debt.

EXTENSION OF WAR CONTROLS

On Feb. 3, 1947, President Truman asked for another year of control over scarce sugar, grains, flour, rice, molasses, fats and oils, meat and dairy products, peas, beans, fish, industrial materials such as cinchona bark, alkaloids, rubber, manila and agave fiber and cordage, tin and antimony. Shortages in freight cars, automobiles, tractors, and the drug, streptomycin, also demanded continuance of controls, he said. He requested that the United States Maritime Commission be permitted to operate certain shipping lines and the Army and Navy to supply local transportation to personnel where public facilities were inadequate. Permission to operate ships under less restrictive rules as to equipment and manning than would otherwise be the case was necessary for troops stationed abroad. The President promised that controls would be relaxed as soon as possible.

On Feb. 7, the President urged upon Congress the need of continuity in the policy and administrative action concerning natural and synthetic rubber. Stating that it appeared probable that in late 1947 or early 1948, natural rubber production would have increased where it would be possible to satisfy world rubber needs largely from natural rubber, he recommended to Congress that it make a declaration of policy to the effect that it was the firm intention of the Government to maintain a synthetic-rubber industry in the United States, adequate to the minimum needs of national security. He further recommended such legislation as was found necessary to accomplish this objective.

In a step foreshadowed in his message of Feb. 3, President Truman recommended to Congress on Feb. 19 a sweeping revision of legislation under which the executive branch of the Government had been exercising extraordinary powers pursuant to declarations of a state of emergency by President Roosevelt. The President told Congress that his recommendations would, if accepted, materially assist in further freeing the country of war controls and would help make possible an early ending of the emergencies. The message divided the more than 100 emergency laws on the list into five categories: temporary statutes which should be repealed; permanent statutes effective only during an emergency; statutes appropriating funds; statutes which should be temporarily extended; and statutes remaining in force for the period or purpose stipulated.

In a message on March 19, 1947, the President recommended that the authority derived from the Export Control Act be extended for a period of one year beyond June 30, 1947. A review of domestic and world supplies had convinced him that the Government must continue its control over the export of products in which critically short supplies existed. This was necessary in order to protect the economy of the United States as well as to discharge our international responsibilities. By retaining the ability to channel commercial exports of critically scarce materials, we could permit export of these products to countries whose need was greatest and also could use the power to implement our foreign loan program The President looked forward to the time when the United States and other countries could remove interferences to the free flow of commodities in world trade. He repeated this request in a message of May 23.

JEFFERSON DAY DINNER

President Truman told Democratic party leaders at a Jefferson Day dinner on April 5 that the United States must take a positive stand against aggression, which included secret as well as armed infiltration He said his foreign policy was tha of "aiding those peoples whose freedoms are endangered by foreign pressure." The United States must "stand guard" before the United Nations and "when necessary, supplement its activities."

Concerning domestic affairs, the President asserted that any substantial reduction of the budget would be an invitation to disaster, and tha attempts to reduce income taxes 2 to 30 per cent would be extremely shortsighted without making a rea effort toward debt reduction. He promised to support tax reduction at the proper time. He reiterated his concern over the prevailing level of prices and declared these prices must be brought down if our entire economy was not to suffer.

WARNING AGAINST RISING LIVING COSTS

Addressing the annual luncheon meeting of the Associated Press in New York April 21, President Truman sounded a new alarm against rising living costs and called for a united effort by government, industry, agriculture, and labor to prevent a disastrous depression. He said that prices must be brought down by private enterprise and asked moderation from labor. He also requested all-out farm production and resistance to tax cuts until the country was over the danger of inflation. He warned that, unless all cooperated, an economic cloudburst might weaken American resistance to totalitarianism and leave free peoples everywhere easy targets for external pressures and alien ideologies.

PUBLIC HEALTH PROGRAM

President Truman, in a message to Congress May 19, renewed his plea for enactment of a long-range public health program, including provisions for disability insurance. Asking that the task be given immediate attention, he told Congress that, of the four basic risks to the security of the working people and other families, we had provided some protection against three—unemployment, old age, and death. He said that protection against sickness was the major missing element in our national social insurance program. In addition to insurance against sickness, the President asked for adequate public health service, including an expanded maternal and child health program; additional medical research and medical education; and more hospitals and doctors in all areas of the country where they were needed.

ATTACKS SENATOR TAFT'S ECONOMIC VIEWS

In a long prepared statement which he read at his news conference June 5, President Truman denounced as "fallacious and dangerous" certain economic views which he attributed to Senator Robert A. Taft. The President took the position that Senator Taft stood for the theory that high demand justified or necessitated high prices. He said that this view could only rely on the "old idea of boom or bust." He repeated his belief that the danger of collapse in the national economy could be averted by voluntary price reductions.

OPPOSITION TO RENT RISE

An order for a general ten per cent increase in rents drawn up by Major Gen. Philip B. Fleming, head of the Office of Temporary Controls, was countermanded by President Truman on Jan. 26, 1947. At his news conference a few days later, the President told reporters he was determined to hold the line against any blanket rent increases. He admitted there should be some adjustments where rents were so low as to work a hardship on the property owners.

EXTENSION OF FEDERAL RENT CONTROL

On June 30, President Truman reluctantly signed the bill approving an extension of modified Federal rent control until March 1, 1948, but he said it would lead to rent increases for millions of families. He accused Congress of permitting a real-estate lobby to force the enactment of the bill and called for an investigation of this lobby. Declaring that he had no choice but to sign the bill, since otherwise all rent controls would be removed, he demanded that Congress stay in session long enough to meet squarely the national housing problem and enact a bill along the lines of the one sponsored by Senators Taft, Ellender, and Wagner.

REORGANIZATION PLANS OF 1947

On May 1, President Truman transmitted to Congress two Reorganization Plans. The provisions of the first plan were designed to maintain organizational arrangements worked out under authority of Title I of the First War Powers Act. Its objectives were to provide for more orderly transition from war to peacetime operation and to supplement previous actions looking toward the termination of wartime legislation.

Plan No. 2 permanently transferred the United States Employment Service to the Department of Labor. It also transferred the functions of the Administrator of the Wage and Hour Division to the Secretary of Labor to be performed subject to his direction and control. In order to assume more uniform and effective action by Federal contracting agencies, the Secretary of Labor was authorized to coordinate the administration of the acts for the regulation of wages and hours on Federal public works.

The President transmitted Reorganization Plan No. 3 of 1947 to Congress on May 27, asking for the creation of a new housing and home finance agency to coordinate and supervise government housing activities, temporarily consolidated under the National Housing Agency, which was due to expire with the First War Powers Act. He said the action was necessary to prevent a scattering of Federal housing programs and machinery with the expiration of his wartime consolidating power.

PORTAL-TO-PORTAL PAY SUITS BANNED

On May 14, President Truman signed the bill barring portal-to-portal pay claims, past and future, stating that he believed that "in the interest of the economic stability of our nation, it is essential to clarify the matter by statute." In his message to Congress, he again urged that the minimum wage provided by the Fair Labor Standards Act be increased from the present 40 cents an hour to 65 cents. He also asked that minimum wage benefits be extended to many persons not protected by the law.

VETO OF TAX REDUCTION BILLS

On June 16, President Truman vetoed the $4,000,000,000 tax reduction bill, declaring it offered "dubious, ill-apportioned, and risky benefits at the expense of a sound tax policy and is, from the standpoint of government finances, unsafe." He told Congress the time for tax reduction would come when general inflationary measures had ceased and the structure of prices was on a more stable basis. He criticized the measure passed by Congress on the ground that it reduced taxes in the high income brackets to a grossly disproportionate extent and failed to give relief in the lower brackets where it was most needed. He recommended that Congress study and plan for a thorough-going revision of the tax system. The House o Representatives failed by a margin of two votes to pass the bill over the President's veto.

In his veto message of July 18 President Truman pointed out tha the new bill to reduce taxes wa identical to the one he had vetoe June 16 except for a change made i the effective date from July 1, 194 to Jan. 1, 1948. He asserted that th reasons for a veto were more com pelling than a month earlier, point ing particularly to the necessity o keeping revenues high in order t maintain national defense and dis charge responsibilities for interna tional rehabilitation. He declare that, until we were better able t estimate the cost of our investmen in world peace and collective security it was unwise to make so large a cu in the Government's future incom that ability to meet our needs woul be impaired. He repeated his crit cism of the tax relief bill as unfa to low-income groups.

VETO OF LABOR BILL

As was generally expected, Pres dent Truman, on June 20, vetoed th Taft-Hartley bill to curb labor union In his message to Congress, the Pres dent called the bill unfair and u workable and said it would promo strikes. He declared that "the b taken as a whole would reverse the basic direction of our national labor policy, inject the government into private economic affairs on an unprecedented scale, and conflict with important principles of our democratic society." He invited Congress to try its hand again with a wholly new bill.

The House of Representatives promptly voted, 331 to 83, to pass the bill over the President's veto. President Truman, in a radio address, denounced the bill as a "shocking piece of legislation," and expressed the hope that it would not become law. Despite his protest the Senate voted the bill into law overriding the President's veto by a vote of 68 to 25.

VETO OF WOOL PRICE SUPPORT BILL

On June 26, President Truman vetoed the bill authorizing curbs on foreign wool imports. He declared the bill would be a tragic mistake just at a time when this country was seeking international agreement for reducing trade barriers, and that it would be a blow to our leadership in world affairs. At the same time he agreed to approve a bill which would support domestic wool prices through government purchases alone.

ARMY-NAVY MERGER

President Truman announced Jan. 16, 1947 that the War and Navy Departments had agreed to unification of the Armed Forces, something he had recommended on several occasions. The most radical step in the proposed plan was that only the new Secretary of National Defense would have Cabinet status. Instead of creating a single Department of National Defense, the plan proposed that the present War and Navy Departments, plus an entirely new Air Department, should remain as entities, and that the new National Defense Secretary should become a super-Secretary over the entire establishment. On Feb. 26, he sent to Congress the draft of a proposed bill to provide for carrying his recommendation into effect. The bill became law July 17, and the President nominated Secretary of the Navy, James V. Forrestal, as Secretary of Defense.

END OF SELECTIVE SERVICE

President Truman recommended on March 3 that Selective Service be allowed to lapse on March 31, 1947. He told Congress that there was no guarantee that the volunteer system would keep the Army, including the Air Force, at 1,070,000 and the Navy at 571,000 during the ensuing year, figures which must be maintained if the nation was to have reasonable insurance of security. Fearing that volunteers might fall off in the fiscal year ending June 30, 1948, the President asked Congress for a "gentleman's agreement" that the War and Navy Departments might ask for re-establishment of Selective Service if the numbers should fall below the figures set.

In order to provide for the orderly and expeditious liquidation of the Selective Service System on March 31, the President in a message of March 10, recommended the enactment of a law which would establish an Office of Selective Service Records and establish and maintain Federal record depots in the states, the District of Columbia, and the territories and possessions of the United States.

UNIVERSAL MILITARY TRAINING

President Truman, in a message telegraphed on Aug. 28 to the opening session of the American Legion's annual convention in Madison Square Garden, New York, declared that only universal training would assure us that sufficient forces would be available in the critical emergency of a total war.

FLOOD CONTROL AND CONSERVATION

Citing the long list of midwest floods, President Truman, in a special message to Congress July 16, urged early action on a ten-year program to check floods in the entire Mississippi Basin. He asked Congress to appropriate $250,000,000 in 1947 for the purpose. The President took occasion in dedicating the Everglades National Park on Dec. 6 to emphasize the need for conservation of our national and natural resources.

PRESIDENTIAL SUCCESSION

On Feb. 5, 1947, President Truman sent a letter to Arthur H. Vandenberg, President of the Senate *pro tempore*, repeating his previous suggestions that Congress should give consideration to the question of Presidential succession. He again recommended that the Speaker of the House of Representatives be placed first in order of succession, and if there were no Speaker, or if he failed to qualify, that the President *pro tempore* of the Senate should act until a duly qualified Speaker was elected. In the event that Congress should not be disposed to enact such a bill, the President asked that some other plan of succession be devised so that the office of President would be filled by an elected officer, rather than one whose succession rested with the Chief Executive, as in the case of Cabinet officers.

FREEDOM AND EQUALITY

In an address June 29 at the annual convention of the National Association for the Advancement of Colored People, President Truman declared that we had reached "a turning point in the long history of our country's efforts to guarantee freedom and equality to all our citizens." The extension of civil rights today meant, he said, not protection of the people against the Government, as in past times, but protection of the people by the Government. The Federal Government must be made "a friendly, vigilant defender of the rights and equality of all Americans." The President asserted that there was "no justifiable reason for discrimination because of ancestry, or religion, or race, or color."

PURGE OF DISLOYAL GOVERNMENT EMPLOYEES

On March 22, 1947, President Truman ordered a drive to purge the Government of disloyal employees. In addition to treason, sedition, advocacy of revolution and acting in the interest of a foreign power, the President ordered that loyalty investigations take into consideration "sympathetic association" with any group held to be inimical to the American system. He created a new loyalty board in the Civil Service Commission to review cases of persons recommended for dismissal on loyalty grounds and ordered each government department or agency to establish one or more loyalty boards.

He released a statement to the press Nov. 14 which carried the information that any person suspecte of disloyalty must be served with written notice of the charges agains him and could appeal the finding against him to the head of the department and then to the Loyalty Review Board within the Civil Service Commission.

GOOD NEIGHBOR POLICY

In an address at a state dinner hel in his honor in Mexico City on Marc 3, President Truman assured Mexic and the other American Republic that the United States would remai faithful to its non-intervention commitments. He said that the Unite States could not be indifferent t happenings beyond its borders because the lawlessness of one natio might threaten the very existence the law on which all nations depended; but he emphasized that n nation, by reason of its strength, ha the right to impose its will on weaker member of the internation family.

On May 26, the President urge Congress to authorize a comprehe sive program of military collabor tion with all Western Hemisphe nations. The plan aimed at moder zation and standardization of arm services in Latin America and Ca ada. The President gave assurances that the United States would not approve or participate in the indiscriminate or unrestricted distribution of armaments. Operations under the program would be subject to any international agreement for the regulation of armaments to which the United States might be a party. President Truman said that, under the program, care would be taken to guard against placing weapons of war in the hands of any groups who might use them to oppose peaceful and democratic principles.

INTER-AMERICAN DEFENSE CONFERENCE

President Truman closed the Inter-American Defense Conference at Petropolis, Brazil, Sept. 2, with a speech in which he reduced the basic foreign policy of the United States to a desire for permanent peace, but at the same time emphasizing that the nation was determined to remain strong in order to carry out this policy. Reiterating the fidelity of the United States to the United Nations, he said "we shall not forget our obligations under the Charter, nor shall we permit others to forget theirs."

Speaking before a joint session of the Brazilian Congress Sept. 5, the President emphasized strongly the cooperation between Brazil and the United States in hemispheric policy and in playing a firm role in the United Nations.

SUPPORT OF UNITED NATIONS

The President submitted to Congress on Feb. 5, 1947, his first annual report on the activities of the United Nations and the participation of the United States therein. After a review of the accomplishments of the United Nations, he declared that our policy of supporting the organization with all the resources we possess must be given effective practical application on a genuinely national, bipartisan basis. He said that such support was just as necessary in the economic and social field as in the political field.

FOREIGN RELIEF

On Feb. 21, 1947, the President asked that $350,000,000 be voted for relief aid to people of liberated countries abroad. Noting that full-scale supply operations by UNRRA were rapidly drawing to a close, he said that "on humanitarian grounds, and in the light of our own self-interest as well, we must not leave the task unfinished."

On Feb. 24, the President recommended that Congress authorize the United States to participate as a member of the International Refugee Organization. Pointing out that there were more than 1,000,000 displaced persons remaining in Germany, Austria, and Italy, almost two-thirds of whom were under United States care and control, he said he felt sure that, with the prompt leadership of the United States, the Organization would be in a position to function as an international body to perform an essentially international service.

In making public on Feb. 28 a progress report from his Cabinet Committee on World Food Programs, President Truman said that the Government's goal of 400,000,000 bushels of relief grain shipments for 1946-47 would be reached two months ahead of time. However, he called for maximum deliveries after the June 30 deadline in the interest of world stability and freedom. He said there were no grounds for complacency since the battle for food was by no means over. Urging continued sharing our abundance with those in dire need, the President declared that every additional pound of grain we could export was a contribution to reconstruction and world peace.

In a message to Congress July 7, President Truman again advocated legislation to enable a substantial number of displaced persons to enter the United States as immigrants. He declared that there was no proposal for a general revision of our immigration policy or a lowering of our standards for testing the fitness for admission of every immigrant, including the displaced persons. He added that we could readily absorb the relatively small number of displaced persons who would be admitted.

TRADE AGREEMENTS PROGRAM

Procedures on trade agreements programs were outlined by President Truman in an executive order and an accompanying statement issued Feb. 25, 1947. The President affirmed the faith of the Administration in the program which, he said, had been an integral part of our foreign policy, with widespread support from industry, labor, and farmers. The new executive order, according to the President, made some procedural changes which gave assurance that American interests would be properly safeguarded. As on other similar occasions, he called for bipartisan support of our foreign economic policy.

President Truman, in an address at Baylor University March 6, asserted that the United States must take the lead in reducing international trade barriers; otherwise we would plunge the nations into economic war. Now, as in 1920, the President said, the world had reached a turning point in its history. National economies had been interrupted, economic policies were in a state of flux, and the decisive factor would be the type of leadership the United States could give to the world. He attacked those who, for partisan advantages, would seek to undermine the foreign economic policy of the Government and return to the period of high tariffs and economic isolation. Asserting that business is poorer when markets are small and good when they are big, he forecast a larger foreign trade under the proposed International Trade Organization. He declared that peace and freedom could not be achieved by force but by mutual cooperation and a willingness to deal fairly with every friendly nation in all political and economic matters.

CHANGE IN NEUTRALITY POLICY

Pointing out that the Government of the United States was obliged by the Neutrality Act of 1939 to "treat aggressor and aggrieved, peacemaker and troublemaker" alike in the matter of permitting American manufacturers to supply them with arms, ammunition, or implements of war, the President, on April 15, proposed that Congress delete from the statutes the legal concept of compulsory neutrality as contained in Section 12 of the Neutrality Act. He asked for the enactment of a Munitions Control Act of 1947, which would give the President broad discretionary powers, through a licensing system, to grant or withhold military equipment to or from foreign governments. The new act would enlarge the President's discretion in the designation of articles the export of which he considered dangerous to the security of the United States.

AID TO GREECE AND TURKEY

Addressing a joint session of Congress March 12, 1947, President Truman asked that $400,000,000, men, and materials be sent to Greece and Turkey to battle totalitarian aggression. He expressed the belief that "it must be the policy of the United States to support free peoples who are resisting attempted subjugation by armed minorities or by outside pressure." In reply to those who had suggested that Greece was a problem for the United Nations and not for United States action alone, President Truman said the need for immediate action was so urgent that there was no way at the time for the United Nations to extend help.

Although he did not name them, he, in effect, accused the Soviets of violating the Yalta Agreement for freedom of choice by European nations as to the kind of governments they wanted. He declared that the United States had made frequent protests against coercion and intimidation in Poland, Rumania, and Bulgaria. He added that there had been similar developments in a number of other countries. In closing his address, the President emphasized the gravity of the steps he proposed, but said the welfare of the United States and the peace of the world were involved.

President Truman signed the Greek-Turkish aid bill May 22, 1947. Stating that the conditions of peace included the ability of nations to maintain order and independence, and to support themselves economically, he asserted that the newly approved act was an important step in the building of the peace. He maintained that, in extending aid requested by Greece and Turkey, the United States was helping to further aims and purposes identical with those of the United Nations, and was proof of the fact that we not only pledge support to the United Nations but that we act to support it.

DENUNCIATION OF THE HUNGARY COUP

On June 5, President Truman denounced the Communist coup in Hungary as an outrage and approved the dispatch of a sharp note of protest by the State Department to the Soviet commander in Budapest. He added that the United States did not intend to stand idly by in the circumstances.

KANSAS CITY SPEECH

Addressing a convention of war veterans in Kansas City June 8, President Truman said that it was our obligation to lead the peoples of the earth toward the goal of lasting peace. He declared that we would "continue every effort to obtain the ideal of a United Nations which can banish war for all time." This necessitated the maintenance of our Army, Navy, and Air Force in effective readiness for any emergency. In emphasizing also the need for maintenance of a sound and prosperous economy, the President reviewed his previous recommendations to Congress for legislation in the social and economic fields.

REAFFIRMATION OF AID POLICY

Speaking before the Canadian Parliament June 11, President Truman asserted that the United States intended to aid those nations which seek to live in peace. He pledged use of our resources in promoting world recovery. He also called for completion of the St. Lawrence waterway project.

INDEPENDENCE DAY ADDRESS

Pleading for dropping of barriers between all nations of the world, the President, in his Independence Day address at Monticello, accused certain nations of withholding their support of reconstruction plans for Europe on the ground that it would mean interference by some nations in the internal affairs of others. His remarks were interpreted as being aimed at Soviet Russia's withdrawal from the Paris economic conference which was called to discuss Secretary of State Marshall's plan for United States aid on a basis of European self-help. The President declared that the cooperation of all nations was necessary for reconstruction and the production and exchange of goods. He added that an important step to assure world peace would be to stop propaganda attacks upon other nations. The first requisite of peace, he said, was "adherence to the principle that governments derive their just powers from the governed."

ASSURANCE OF AID TO ITALY

On Dec. 13, on the eve of the withdrawal of the last American troops from Italy, President Truman announced that the United States would consider appropriate measures for maintaining peace and security should the independence of Italy be threatened.

FOOD CONSERVATION

On Sept. 25, the President organized a national drive against the waste of food. Toward this end, he appointed a 26-member citizens food committee to map a domestic campaign as the first requisite to an aid-Europe plan. Charles Luckman, president of Lever Brothers, Cambridge, Mass., was made chairman of the committee, which included housewives, food experts, heads of farm and labor organizations, and representatives of the food distribution field.

Addressing the first meeting of the Citizens Food Committee Oct. 1, the President set a goal of 100,000,000 bushels of grain which must be saved by the American people to be sent to Europe in addition to the 470,000,000 bushels earlier estimated as the limit which could be spared. In a radio address Oct. 5, he urged the American people to conserve food. He lashed out angrily at grain speculators.

EUROPEAN RELIEF AND PRICE CONTROLS

President Truman, on Sept. 29, told a group of Congressional leaders that an additional sum of $580,000,000 was needed to help France and Italy survive the winter months as free and independent nations. He made it clear that the figure was a rock-bottom estimate. He included Austria in his calculation but said that there would have to be a separate appropriation for War Department administration of the occupation zones abroad. The President declared that the prospect of a general recovery program for western Europe, aided by the United States, had raised hopes for eventual recovery and had strengthened democratic forces.

By proclamation issued Oct. 23, the President called Congress to reconvene Nov. 17 to appropriate funds for emergency relief in western Europe and to curb the high cost of living at home. In a radio broadcast to the nation Oct. 24, he asserted that legislation by Congress was essential to meet the immediate needs of Europe, particularly France and Italy. He stressed that action by the Government in no way reduced the necessity for pressing forward the voluntary food-saving program.

Addressing the specially reconvened meeting of Congress on Nov. 17, the President combined an appeal for immediate relief to Europe with a program calling for limited price and wage controls. He postponed discussion of long-term aid to Europe to a later date, concentrating on stop-gap relief and the somewhat related subject of domestic inflation. While urging continued voluntary attempts to combat inflation, he proposed a ten-point program directed toward relieving monetary pressures, channeling scarce goods into most essential uses, and dealing directly with specific high prices.

EUROPEAN AID PROGRAM

President Truman, in a message to Congress Dec. 19, asked for a $17,000,000,000 European recovery program and a bold defense of free men against totalitarian pressures. He proposed that the sum be invested over four and a quarter years as a major step in our quest for a just and lasting peace. As a first installment, he asked for authority to spend $6,800,000,000 in the first 15 months. He predicted that opposition already announced by European Communists would result in further incitement to strike "for the purpose of bringing chaos in the hope that it will pave the way for totalitarian control." Along with his message, the President forwarded to Congress a bill to authorize the $17,000,000,000 expenditure and set up the machinery for carrying out the long-range recovery program.

CRITICISM OF ANTI-INFLATION BILL

Although he denounced the Republican anti-inflation bill as feeble and pitifully inadequate, President Truman, in a special statement issued Dec. 28, announced that he would sign the measure. He promised that the powers granted to the Administration in the bill would be used but said the public must not be misled into believing they would reduce the high cost of living or keep prices from going even higher. Instead, he asked Congress to pass the original ten-point program he submitted Nov. 17, which for the most part was rejected.

PARDONS DRAFT EVADERS

On recommendation of his Amnesty Board, headed by Owen J. Roberts, former Associate Justice of the U. S.

Supreme Court, President Truman, on Dec. 23, granted a full pardon, restoring all political and civil rights, to 1,523 men who were convicted of violating the Selective Service Act during the war. Religious conscientious objectors, Japanese Nisei, and draft evaders who subsequently served honorably in the Armed Forces, and others who proved their evasion was due to ignorance, were included in the list.

SCIENCE COORDINATING COMMITTEE

By an executive order issued Dec. 24, President Truman established an Interdepartmental Committee for Scientific Research and Development to coordinate Federal scientific activities. He assigned to the committee the tieing together of the manifold and growing scientific operations of the Government, ranging from crop improvement to atomic energy.

NATIONAL PERSONALITIES

By Clark F. Norton
Professor, University of Michigan

HERBERT C. HOOVER

Former President Herbert C. Hoover continued to serve his country with distinction in 1947. At the age of 72, he completed his third postwar food mission and accepted the chairmanship of the newly created Commission on the Organization of the Executive Branch.

Upon President Truman's request, Hoover agreed (Jan. 22) to undertake a study of food conditions and related matters in the British-American zones of Germany and Austria. Following a two-week personal survey of those areas in February, he made three extensive reports on the problem to the President. For Germany, he proposed (Feb. 27) an immediate increase in food supply for certain groups. The cost to the United States could be reduced, he suggested, by transporting goods in German-operated American ships, replacing destroyed German fishing boats, and increasing the export level of German manufactured goods. Moreover, he believed (Feb. 26) that all relief expenditures should be continuously supervised by experts, used for nonpolitical purposes, and repaid by an export tax on the debtor countries.

Hoover recommended (March 10) for Austria an emergency relief appropriation of $155,000,000, economic unification of the four zones, the release of lands and factories requisitioned by the Soviet Union, and reduction in the size of Russian armies. He cautioned, however, that a real solution would depend upon freeing Austrian economy to produce and export. Likewise, he concluded (March 23) that Germany would remain a drain on United States resources until her heavy and light industries were restored to production. Consequently, he opposed the removal or destruction of industrial plants and the separation of the Ruhr or the Rhineland from Germany. In particular, he condemned (April 18) the Allies for destroying Europe's capacity to produce fertilizer while the whole continent was "gasping for food."

A sizable part of the German food crisis Hoover attributed (May 15) to the failure of the Germans themselves to collect indigenous food from their own farmers. After a study of the American economic situation, he concluded (June 15) that, unless production was increased or consumption decreased, the United States must considerably reduce its export volume. Our trade balance could be improved, he said, by importing and stockpiling such commodities as tin, manganese, copper, lead, etc. He also advocated (July 12) adopting a voluntary food conservation program.

On several occasions the former President severely criticized the

Soviet Union. The "chaos and misery" in Greece could be greatly alleviated, he claimed (March 24), if Premier Stalin would order guerrilla raids to cease. Because of Russian obstruction to peace efforts, Hoover proposed (May 26) that the other Allies proceed immediately to negotiate treaties with Germany and Japan. Nevertheless, he believed (Aug. 9) that the Russian "instrument of ideological penetration" was weakening, and he predicted (Nov. 20) that ultimately the Communist-dominated nations in eastern Europe would "throw off their chains" by revolution.

During the last quarter of the year, Hoover devoted himself to the bi-partisan commission created by Congress to survey the structure and operation of the Federal executive branch. Named (July 16) to the post by Speaker of the House Joseph Martin, Hoover was elected (Sept. 29) chairman of the body by its other 11 members. By December, the commission under his direction had parceled out for study to committees several phases of the problem and had the project well under way.

ARTHUR H. VANDENBERG

In 1947, Senator Vandenberg, president pro tempore of the Senate and chairman of the Senate Foreign Relations Committee, achieved distinction through his efforts to unify and strengthen United States' foreign policy. Moreover, despite repeated denials, he was widely regarded as a possible candidate for the Republican presidential nomination in 1948.

Vandenberg's bi-partisan approach to the conduct of foreign relations appeared clearly in his speech at Cleveland (Jan. 11) setting forth his basic convictions on American foreign policy. There, he assured the world that the United States would fully support the United Nations, promote democracy and human rights, seek peace with justice, and align itself against aggression. However, he warned that disarmament and the release of atomic bomb secrets would depend upon like disarmament by other major powers and the establishment of effective international controls. To improve United Nations operations, he proposed exempting the settlement of disputes from Security Council veto and the adoption of a sterner, more prudent fiscal policy. Other steps Vandenberg favored included liberal European relief and rehabilitation appropriations, some form of reciprocal trade agreements, economic unity and political decentralization for Germany, rejuvenation of Pan-American solidarity, and a shift in our attitude towards China from neutrality to outright, substantial aid for the anti-communist forces.

Senator Vandenberg's decision (Feb. 4) not to attend the Foreign Ministers' conference at Moscow in March did not reflect a breach with the Administration's handling of foreign affairs. To the contrary, he approved (Jan. 29) State Department charges that the Polish provisional government had violated pledges for free elections, and he prevented a partisan struggle over the reciprocal tariff program by effecting (Feb. 4-7) a compromise in the Senate, subjecting trade agreements to review, modification, or even termination by unilateral action. During the budget debate he opposed (Feb. 21) drastic cuts in the President's estimates of military needs, and he worked (Feb. 25) for speedy approval of the President's request for American participation in the International Relief Organization.

Further evidence of the Michigan Senator's lack of partisanship in foreign policy matters was demonstrated by his leadership in the adoption of President Truman's Greek-Turkish aid program and in the confirmation of the peace treaties with the "satellite" nations. To offset objections that the United States would be bypassing the United Nations, he proposed (March 31, April 7) and secured approval of an amendment requiring the President to withdraw part or all of the assistance if a majority of the Security Council opposed it, irrespective of a "veto" by one of the

Big Five. During Senate debate on the measure, Vandenberg expressed his fear (April 8) that the collapse of Greece and Turkey "could precipitate a chain reaction which would threaten peace and security around the globe."

The value of Vandenberg's services at the Inter-American Conference in Brazil during August were testified to by a resolution adopted (Aug. 30) by that body in his honor. Both in his address to the Brazilian Congress (Aug. 29) and in his report to the American people (Sept. 4), Vandenberg stressed that the meeting demonstrated "how big and little states can work together on a basis of absolute equality of both obligation and power in the pursuit of international peace and security." Under his guidance, the Senate ratified (Dec. 8) nearly unanimously the Inter-American Treaty of Reciprocal Assistance negotiated at the conference. Earlier, he had strongly urged (April 14) the Pan American Union to invite the Dominion of Canada to become its twenty-second member.

Several times during the year Vandenberg denounced the policies of the Soviet Union. After condemning (Feb. 14) the Russians for ignoring our requests to settle lend-lease accounts, he requested (April 19) delay in further lend-lease shipments until an agreement had been reached. If the United States and Russia were to live together peacefully, he asserted (April 8) that we must stand firm for our ideals and principles. The overthrowing of the Hungarian coalition government he charged (June 3) to a small Communist minority acting under Russian sponsorship and protection. At Ann Arbor, the Senator attacked (Nov. 3) the Soviet Union for paralyzing the Security Council by its vetoes, for "subversive infiltration of other nations," for launching an anti-American vilification campaign, and for frustrating economic unity in Germany.

Though Vandenberg quickly endorsed the general principles behind the "Marshall Plan" for foreign aid, he called (June 13) for the creation of a "special bi-partisan advisory council" and the taking of a "sound, over-all inventory of our own resources" as necessary adjuncts to its full implementation. Later he indicated (Nov. 13) that he favored some repayment by aid recipients through treaties pledging certain strategic materials to the United States. The Administration's request for $597,000,000 interim relief for Europe received (Nov. 24) Vandenberg's unqualified support in the Senate, where he bore the brunt of debate against attempts to reduce its size.

Among the significant domestic issues backed by Senator Vandenberg during 1947, only the following can be noted: reduction by constitutional amendment of the voting age to 18 years; legislation outlawing strikes against the government, jurisdictional strikes, secondary boycotts, and labor violence; early termination of the bulk of all wartime economic controls; reduction in the Federal budget; limitation of presidential tenure to two terms; establishment of a new line of presidential succession through the Speaker of the House and President pro tempore of the Senate; and confirmation of David E. Lilienthal as chairman of the United States Atomic Energy Commission.

ROBERT A. TAFT

Senator Robert A. Taft, chairman of the Senate Labor and Public Welfare Committee and of the Joint Committee on the Economic Report, ranking majority member of the Senate Finance Committee and head of the Senate Republican Policy Committee, played a dominant role during 1947 in national domestic legislation. Moreover, in the fall he announced his candidacy for the 1948 Republican presidential nomination.

Taft's influence was especially marked during the consideration and adoption by Congress of the Labor-Management Relations Act. Not satisfied with the Labor Committee's version of the bill which he originally sponsored, Taft advocated on the

Senate floor four "stiffening" amendments, three of which were adopted. The final act approved by both houses in June substantially incorporated Taft's principles. In July he was named a member of the Joint Committee on Labor-Management Relations provided for by the law.

In the field of national fiscal policy, Taft demanded a reduction of $3,500,000,000 to $4,000,000,000 in the Federal budget, a 20 per cent cut in personal income taxes (effective July 1), and a 10 per cent slash in military and naval appropriations. After President Truman had criticized (June 5) Taft's economic philosophy as "fallacious and dangerous" because it was based on "the old idea of boom and bust," the Senator in turn blamed (June 6) the President for having "created all the basic conditions which compel high prices."

Again in 1947, Taft championed in Congress a long-range national housing program. The provision of decent shelter for low-income groups he considered an essential Federal responsibility. Likewise, he continued to press for the establishment of an executive department of Health, Education and Security, and he introduced a bill providing sizable grants of Federal aid to states for public education. Despite opposition by a majority of Republican Senators, Taft joined forces with the Democrats to secure approval (July 22) for President Truman's reorganization plan incorporating major housing agencies into a single administrative unit.

On a number of other issues, however, Taft bitterly fought the Administration's program. David E. Lilienthal's nomination to the United States Atomic Energy Commission chairmanship he attacked (Feb. 21) on the grounds that Lilienthal was "temperamentally unfitted" for the job and was "too 'soft' on issues connected with communism and Soviet Russia." He recommended (April 2) that the United States plan for the control of atomic energy should be withdrawn from the United Nations until a general disarmament agreement could be reached. The proposed universal military training act, Taft asserted (June 26), was unnecessary, wasteful, and not beneficial to the health or morale of the nation's youth. He also opposed (July 24) continuation of the State Department's foreign information service.

During a tour of six western states in September and early October, Taft made several addresses and held numerous political conferences. To foster domestic economy he advocated stabilizing prices and wages, reducing taxes and governmental expenses, cutting voluntarily the consumption of scarce and high-priced commodities, limiting public works, and enacting broad social aid legislation.

In a sweeping denunciation of the Administration's foreign policy, Taft declared (Sept. 25) at Tacoma that America had already "lost the peace." In particular, he criticized the concessions made to Russia, the vengeance motive prevalent in our treatment of Germany, and the use of American financial resources to force our ideas on the rest of the world. The guiding principle of our foreign policy should be, said Taft, to maintain peace so long as our freedom is not threatened. Other basic tenets he advanced called for combatting communism at home first, signing a peace treaty with Japan as quickly as possible, maintaining strong national defense forces, and retaining control of the atomic bomb. The plan to partition Palestine received (Sept. 21) his full support, and he approved (Sept. 29) further aid to Europe that would help stricken nations to rehabilitate themselves. Later, he favored (Nov. 18) immediate admission of displaced persons up to the total of unused immigration quotas.

Although Taft declared in February that he was not an "active" candidate for President, political circles generally assumed to the contrary. In late July, he received pledges of support from his colleague, Senator Bricker, and from the Ohio Republican organization, but not until Oct. 24 did he formally announce that he would seek, without an active political campaign, the Republican nomination. In December, Taft declared that he would not accept the nomination for Vice-President.

The two issues which Congress was summoned to consider on Nov. 17—aid to Europe and the control of inflation—were the subjects of numerous pronouncements by Taft. In general, he favored aid for European rehabilitation on a somewhat limited basis. For instance, he supported the unsuccessful attempt to cut by one-third the appropriation of a $597,000,000 emergency relief fund. The long-range Marshall Plan he objected to on the grounds that it would inevitably result in higher prices, increased taxes, and the reimposition of wartime economic controls. Moreover, he feared that the United States would make itself vulnerable to charges of interference and imperialism and would be encouraging unsound fiscal policies and false currency values. In addition, he questioned whether "lavish dispensation of American dollars" would have much influence on the acceptance or rejection of communism in Europe. At any rate, Taft wanted the expenditures financed from current taxation and an independent board created to administer the whole program.

To check inflation, Taft advocated cutting government expenditures, reducing taxes, holding wages down, increasing production, limiting exports, checking bank credit, controlling government purchases for export abroad, and maintaining support prices only to honor prior commitments. Further, he contended that a campaign discouraging spending, encouraging saving, and appealing to industrialists to forego profits would have some benefit. President Truman's ten-point program to revive partial wage, price, and rationing controls, however, Taft denounced as a "step toward a completely totalitarian nation." He was instrumental in Congressional passage of a greatly modified anti-inflation bill which, although described (Dec. 28) by the President as a "pitifully inadequate weapon," he claimed (Dec. 29) would assure the Administration ample authority to curb the principal causes of inflation.

HAROLD E. STASSEN

Few presidential candidates have managed, without benefit of public office, to maintain themselves in the political spotlight to the extent that Harold E. Stassen did in 1947. Through frequent pronouncements on current issues and a fact-finding European tour, he commanded almost continuous national attention.

Early in the year, Stassen condemned (Jan. 11) President Truman's budget as "padded, wasteful, and extravagant." In his opinion, national expenditures should be reduced $5,000,000,000 and income taxes cut 10 per cent or more. The Republican party, he believed (Jan. 20), should champion small business. In labor-management relations he favored (Feb. 7) outlawing mass picketing, jurisdictional strikes, secondary boycotts, and foremen's unions, but he opposed compulsory arbitration, special labor courts, drafting strikers, and issuing injunctions upon private petition. Legislation requiring unions to file financial statements, elect officers by secret ballot, and vote on proposed strikes received his approval. Not satisfied with his party's high tariff policy, he supported (Feb. 12) the Administration's reciprocal trade program.

For two months (Feb. 23-April 29), Stassen traveled through 16 European countries in order to study their economic problems and to broaden his knowledge of world conditions. At Moscow he exchanged viewpoints (later published in full) with Premier Stalin on such topics as Russian-United States co-operation, control of atomic energy, and censorship of the press. Upon returning, he expressed (April 29) the belief that, if the United States "remains strong and follows wise and humanitarian policies," peace could be established at least for a generation.

Time and again Stassen called on the United States to extend financial and material assistance for world rehabilitation. With minor reservations, he endorsed (May 5) President Truman's Greek-Turkish aid plan. He proposed (May 21) a long-range program whereby the United States during the next decade would distribute 10 per cent of its production to needy nations; repayment would be through access to raw materials and by agreements which prohibited discrimination against Americans, further nationalization of industry, and exploitation of dependent peoples.

In the same vein, he suggested (June 16) that, after a careful, bipartisan analysis of American resources had been made, priorities for the allocation of relief goods be established and (July 30) aid be made conditional upon resistance toward socialism. His warning to the American Legion's 29th annual convention (Aug. 31) that the alternative to American help for Europe would be the spread of communism helped secure unanimous approval by that body of the Marshall Plan. In calling upon the President to summon Congress to consider European relief, Stassen proposed (Sept. 17) the creation of a "Peace Production Board" for purchasing and shipping abroad both food and materials.

Improvement in Russian-American relations, Stassen said (July 14), depended upon convincing the Soviet Union that the United States economic system will continue to function successfully and that Communists can not infiltrate and dominate any major power. United States Communists should be combatted by full identification, prosecution for violations of the law, and removal from public payrolls; also, deficiencies and evils in the American system should be corrected. Despite apparent friendliness of the Russian people, he maintained (Sept. 19) that differences between the two nations constituted "the No. 1 problem of post-war relations and the greatest obstacle to lasting peace."

Meantime, Stassen was actively courting party support in his preconvention campaign for president. During the year he visited nearly all sections of the country, making contacts with state and local Republican organizations and delivering numerous speeches on national and international affairs. Though conferences with Warren, Dewey, and Taft led to the rumor that he might accept the vice-presidential nomination, Stassen denied reaching an understanding with anyone and insisted that he sought only the presidency. Announcement was made that his name would be entered in the 1948 primaries of at least three states—Wisconsin, New Hampshire, and Nebraska.

Noteworthy ideas stressed by Stassen during the fall included: a nationwide voluntary "save-food" plan (Sept. 20); the stabilization of European currencies (Oct. 7); the reestablishment of consumer credit controls (Nov. 11); a minimum guaranteed farm income (Nov. 13); an embargo on the export of heavy machinery and machine tools to the Soviet Union until that nation agreed to a constructive program for rebuilding Europe (Nov. 14); a $3,000,000,000 reduction in Federal taxes (Nov. 16); a higher income for white-collar workers (Nov. 17); the establishment of a two-party system in the South (Nov. 20); and completion of the St. Lawrence Seaway (Nov. 21).

Stassen's book, *Where I Stand* (published in November), in the main summarized his previously expressed convictions. However, for the first time he advocated that national income taxes be limited to a maximum of 50 per cent of one year's earnings. Other proposals were to eliminate from the Taft-Hartley Act the requirement for non-communist affidavits and the prohibition against political contributions or expenditures by unions, and to provide a national-state system of health and hospital insurance for those persons covered by social security.

In December, Stassen's accusations

(Dec. 10) that government officers had improperly profiteered by speculation in the commodities market brought about a series of rather spectacular Congressional investigations. Further, he blamed the failure to check living costs on the Administration's inadequate use of export controls, hoarding of scarce products, inflationary purchasing practices, and belief that wages could be raised without increasing prices.

THOMAS E. DEWEY

Thomas E. Dewey's prominence in national and state politics continued undiminished during his fifth year as New York State's chief executive. Although no formal announcement of his presidential candidacy was made until January 1948, the Republican party standard-bearer of 1944 maintained close contact with political leaders throughout the nation and was generally regarded as a leading contender for his party's nomination.

In his second inaugural address, Governor Dewey stressed (Jan. 1, 1947) the need for solving the dilemma confronting society at all levels: how to obtain security without losing individual liberties. Too often those of "extreme views" have insisted that the only choice is between reaction and radicalism; to the contrary, Dewey believed that, by adopting a middle course, security could be enjoyed without sacrificing essential freedoms.

Dewey's annual message advised (Jan. 8) caution in committing the state to public works or other large new financial outlays. In addition, he favored broadening municipal tax powers, extending rent-control legislation, increasing state employees' compensation, and authorizing by constitutional amendment higher pay for legislators and easier removal of undesirable judges. His special requests (Jan. 13, 20, 30) for sizable appropriations to complete the veterans' housing program, finance $300 salary increases for school teachers, and continue the school lunch program received prompt approval. With respect to education, he fully endorsed (March 3) recommendations made by a special committee for a minimum teachers' pay-scale, elimination of the salary differential between elementary and secondary schools, and promotions based only on demonstrated merit.

Although he submitted (Feb. 1) a record-high budget to the legislature, Dewey opposed a general increase in taxation. However, in order to retire within a decade the proposed $400,000,000 veterans' bonus bond issue (subsequently approved by public referendum), he urged raising over $40,000,000 a year additional revenue by higher cigarette and income tax rates.

As in former years, Governor Dewey freely exercised his veto prerogative; over one-fourth of the 1,231 bills submitted to him by the 1947 session of the legislature failed to receive his approval. Probably the most controversial law he signed was one outlawing strikes by public employees. In signing this measure (which he had demanded following the Buffalo teachers' strike), Dewey asserted (March 27) that "strikes against Government are wholly unlawful." Another significant act he approved authorized counties and large cities to levy special taxes. On the other hand, for example, Dewey vetoed bills to increase the civil jurisdiction of justices of the peace, to provide state operation of the Albany airport, and to permit issuing motor vehicle licenses for a nine-month period.

Turning his attention to political affairs, Dewey told (May 23) the Young Republicans of New York that their party represented widespread political viewpoints, liberal, conservative, and middle-of-the-road; any American, he said, irrespective of his political opinions, was welcome to join the party if he believed in the Constitution. Moreover, he claimed (June 7) that the Republican party offered women more opportunity for political leadership than any other. By requesting an appropriation to investigate the loyalty of Federal employees, President Truman, Dewey asserted (May 27), was admitting that the Democrats needed "a $25,000,000 spraying with D.D.T."

After attending the Governors' Conference in Salt Lake City, Governor Dewey and his family enjoyed an extensive tour of the West during July. Advertised as a non-political vacation journey with no formal speeches to be made, Dewey nevertheless talked with Republican leaders in 15 states and received numerous pledges of support for 1948.

Despite frequent charges that he was too reticent in expressing his opinions publicly, Dewey took a strong stand on a number of issues. For instance, he objected (Jan. 22, 1947) to governmental action artificially raising food prices, although he believed farmers' living standards should not be lowered. Several times (Aug. 27, Sept. 15, Oct. 10) he spoke out for expanding agricultural production through improved techniques. He believed (Aug. 5) that labor's right to organize and bargain collectively must be preserved. For national defense purposes Dewey unequivocally endorsed (Aug. 28) universal military training for able-bodied young men and demanded (Sept. 13) the maintenance of "a powerful military establishment." With obvious implications for the national Administration, he severely denounced (Oct. 31) "government by crisis" as the work of "bunglers and incompetents."

Even more pronounced were his published views on international affairs and United States foreign policy. The Polish election in January 1947 he described (Jan. 27) as "a contemptuous indifference to the principles of free government." In a similar vein he later said (Aug. 26) that Poland had been once more "subjected to enslavement by a ruthless and dictatorial power." Having previously advocated (May 28) unrestricted Jewish immigration into Palestine and the establishment of a Jewish national home there, he promptly approved (Sept. 11) the partition plan recommended by the United Nations' special committee.

The foreign aid programs broached by President Truman for Greece and Turkey and by Secretary Marshall for European economic rehabilitation received Dewey's qualified support. The United States was obligated he maintained (Oct. 10), "to see that no American is poorly fed as a bitter result of thoughtless or badly planned generosity." In a major address, he insisted (Nov. 5) that a business-like administration must be provided for the Marshall Plan by creating a special authority under the direction of a bi-partisan board. Moreover, he criticized (Nov. 20) the failure to include China within the program and demanded (Nov. 24) that assistance be given immediately to that nation. The Soviet Union he condemned (Nov. 19) for trying by "a stream of malicious falsehood and calumny" to keep American aid from hungry nations so that they would "fall prey to the cold aggression of totalitarian Russia."

During the last quarter of the year, Governor Dewey endorsed (Sept. 22) a $2,000,000,000 state highway construction program, created (Oct. 3) by executive order a State Food Commission to help meet the food crisis, and approved (Oct. 7) a plan by which veterans could finance new houses with the help of state bonuses. Relief and public welfare, he asserted (Oct. 7), should be joint problems of both public and private agencies; in fact, he contended (Nov. 19) that voluntary contributions for these purposes were essential to protect society against governmental encroachment on individual freedom because "no agency of Government can ever use money so wisely or well as privately managed or sponsored institutions."

JAMES V. FORRESTAL

As the United States' first Secretary of Defense, James V. Forrestal achieved nationwide recognition in 1947. Formerly a presidential assistant and Under-Secretary of the Navy, Forrestal served with distinction as Secretary of the Navy from 1944 until September when he assumed the new defense post created by Congress.

Forrestal defended (Feb. 26, 28) the proposed $4,500,000,000 budget for the Navy because of this country's increasing responsibility to safeguard security of the sea. He spoke out strongly (May 26) for the American type of "democratic capitalism" and the two-party system of government. World peace could better be achieved, he said (June 16), by attacking the basic causes of war than by disarmament.

Although nominated on July 26 to be Secretary of Defense and immediately confirmed by the Senate, Forrestal did not take the oath of office until so directed by President Truman on Sept. 17. In the meantime, he told (Aug. 28) the American Legion national convention that the United States military power must be kept "vigorous, modern, and capable of swift mobilization"; unification of the armed services, while a step in the right direction, must be accompanied by universal military training to attain these goals. His approach to the problems arising from unification, he said, would be "to depend upon the process of orderly evolution and not of disruptive revolution." He considered (Sept. 23) his primary duty was to develop common practices and common policies, but not to concern himself with details of organization.

Forrestal denounced (Oct. 1) as utter nonsense and without historical foundation Russian charges that American big business elements had precipitated wars. In the interest of national defense, he urged (Oct. 9) construction of the Saudi Arabian oil pipeline, proposed (Oct. 22) the preparation of a total mobilization plan, and supported (Nov. 12) the planning of an adequate air-raid warning network. So that military planning could be on a long-range basis, Forrestal recommended (Dec. 3) substituting a "continuous budget" for annual appropriations and ordered (Dec. 21) the new Research and Development Board to submit each year a master plan for military research.

In an attempt to terminate public speculation about his political future, Forrestal announced (Dec. 11) that he could not be "drafted" as a candidate for Vice-President in 1948 and that he had no intention of resigning his Cabinet position.

WARREN R. AUSTIN

Warren R. Austin, since 1931 United States Senator from Vermont, in 1947 held the major United States posts on the United Nations Security Council, Atomic Energy Commission, General Assembly, and Commission for Conventional Armaments, and served as a delegate to the Inter-American Conference in Brazil.

Austin's official actions and public utterances were generally consistent with the policies of his predecessors. For instance, he closely adhered to Bernard Baruch's ideas on the control of atomic energy. Although he opposed changing the Charter requirement for unanimous approval by the permanent members for Security Council action, he insisted that the veto could not be used "to protect an aggressor from the consequences of his crime" (Jan. 16). Furthermore, he believed(Jan. 26) that other sections of the Charter imposed obligations on United Nations members to take steps collectively against threats to peace despite Security Council inaction. Although serious differences of opinion arose on the Security Council in regard to international disarmament and atomic energy control, Austin predicted (Feb. 7) that ultimate agreement would be reached. To guard against misuse of the veto power, Austin pleaded (Aug. 10) for an improvement in international ethical standards.

President Truman's proposed $400,000,000 aid program for Greece and Turkey was defended (March 28) by Austin as a measure designed "to strengthen the United Nations and to advance the building of collective security." Additional proof of the United States' intention not to bypass the world organization could be found, he said (April 10), in the provision that agreements made with Greece and Turkey would be registered with the United Nations. Austin scored (April 18) victories in the Security Council by engineering the rejection of a Soviet proposal to send a special commission to supervise expenditures in Greece under the Truman plan and by securing adoption of his resolution ordering the Balkan investigation commission to leave a subsidiary group in Greece until further Council action. Later, he denounced (June 27) Yugoslavia, Bulgaria, and Albania for supporting guerrilla activity in northern Greece and demanded effective action to prevent Greek border violations.

Under Austin's sponsorship, the Security Council unanimously approved (April 2) placing the former Japanese mandated islands in the Pacific under United States trusteeship. At the special session of the General Assembly in May, he favored establishing a small, neutral committee, without "Big Five" representation, to inquire into the Palestine question.

In order that the United States might give full support to the United Nations and to the preservation of peace, Austin endorsed (March 4) universal peacetime military training and asserted (June 13) that we could not unilaterally disclose atomic bomb secrets until adequate international control had been established.

Soviet delegate Vishinsky's charges of warmongering against the United States were vigorously denied (Sept. 20) by Austin. In turn, he attacked Russian obstructionist tactics and, after expounding at length on freedom of speech (Oct. 23), he induced the General Assembly to reject a Soviet-sponsored resolution demanding suppression and censorship of "warmongers." Likewise, Austin clashed with the Russians over his resolution (Oct. 19) providing for free elections and the establishment of a national government in Korea.

HENRY A. WALLACE

Former Vice President Henry A. Wallace, in 1947, spearheaded the anti-Administration faction of the Democratic party. After threatening an insurgent movement several times unless Democratic leaders changed their policies, he decided at year's end to seek the presidency in 1948 as the leader of a new third party.

President Truman's request for aid to Greece and Turkey marked the start of an almost continuous series of bitter attacks by Wallace upon United States' foreign policy. The "Truman Doctrine," he said (March 13), called for military subsidies to undemocratic governments in the futile hope that American dollars could stop communism; to the contrary, Wallace believed it would spread communism, unite the world against the United States, and bring us nearer to war.

During April, Wallace made a three-week tour of England, France, and the Scandinavian countries for the announced purpose of discovering "those forces that must be united on behalf of peace." While he was abroad, his severe criticism of American foreign policy led to demands in Congress and elsewhere for withdrawal of his passport or legal prosecution. He stressed the need for an understanding with the Soviet Union and proposed that the United States, through the United Nations, make a sizable loan for Russian relief. As one pathway to peace, Wallace suggested a ten-year $50,000,000,000 United States foreign aid program. Two charges he made frequently were that the United States Government was conducting a "Red Hunt" and that the American press was guilty of "the selective use of the truth."

After returning to the United States, Wallace campaigned in May and June through 15 states for the announced purpose of "liberalizing" the Democratic party. During this period, he continued to denounce

American attempts to arm nations outside the Russian sphere. Likewise, he condemned the bi-partisan conduct of foreign relations in the United States as a "Tory coalition," charged that the Administration was "playing politics with the misery of Europe," and claimed that the universal military training measure was the "most warlike" governmental proposal in our history. To restore confidence between the United States and the Soviet Union, he advocated a Truman-Stalin conference in Berlin to settle issues in disagreement. Although he approved (June 22) the principle behind the Marshall Plan, he later criticized (Dec. 30) it as being "based on world division and conflict." His alternative scheme called for the establishment of a rehabilitation fund to be administered by the United Nations, financed by all nations according to their means, and allocated solely on the basis of need.

Domestically, Wallace feared that the United States was becoming the center of world reaction, evidenced by widespread anti-communist talk, the loyalty test for government employees, and the Taft-Hartley Act. As in previous years, he demanded passage of a national aid program for housing, health, and educational purposes, abolition of the poll tax, and establishment of a Fair Employment Practices Commission. In July, he appealed to organized labor and the small farmers to overthrow the reactionary leadership of the Democratic party in the South.

A theme commonly emphasized by Wallace during the fall was that representatives of Wall Street financial interests occupied the key posts in the Truman Administration responsible for formulating foreign policy. His own philosophy he often termed "progressive capitalism," by which he meant lower prices, higher wages, increased production, and improved living standards. In place of the voluntary "eat-less" program, he recommended (Sept. 22) reestablishment of rationing and price controls. In October, he flew to Palestine for a first-hand study of agricultural and political problems there. His impression of Palestine was that Jewish-Arab tension was not as great as had been reported and that partition could be successfully accomplished with little bloodshed.

As early as July 19, a Democratic faction in California began a "Wallace-for-President" drive. Despite numerous warnings that he would leave his party if it continued a policy of "war and depression," Wallace waited until Dec. 29 before making the final break. The Progressive Citizens of America had already urged him to run on a third ticket, but leaders of several strong labor unions opposed such a move. In announcing his candidacy, Wallace said that the new party would stand for a "positive peace program of abundance and security." He called for a United Nations disarmament conference and an international peace force "stronger than the military establishment of any nation." Announcement of his resignation as editor of the *New Republic* had been published the day before.

GEORGE C. MARSHALL

General George C. Marshall, former Army Chief of Staff (1938-45) and special ambassador to China (1945-46), in 1947 became the first high-ranking military officer to serve as Secretary of State in modern times. As chief spokesman for the United States at various international assemblages and as author of the long-range European Recovery Program, Marshall's influence on American foreign relations was unusually large.

When Secretary of State Byrnes resigned early in January, President Truman named Marshall to the post. En route to Washington from his Far Eastern mission at the time of his appointment, Marshall declared in his report that China's salvation depended upon "assumption of leadership by the liberals." Before taking oath of office (Jan. 21) the new Secretary, completely disavowing any political ambition, insisted that he "never could be drafted" for political office.

Early in February Marshall listed more than twenty projects which, in his opinion, required prompt Congressional action. Among the most urgent items were the continuation of international relief, ratification of peace treaties with the satellite nations, adherence to the International Health Organization and the International Refugee Organization, and authorization of the immigration of displaced persons. While pledging his full support to the United Nations, he stated (Feb. 7) that adequate international control of atomic energy must precede world disarmament. Furthermore, he warned (Feb. 22) the American people not to become indifferent to "the long-time dangers to the nation's security."

At the Moscow meeting of the Council of Foreign Ministers (March 10-April 24) Marshall proposed creating a German national council to serve as a provisional government, which would be replaced within a year through a democratic, popularly approved constitution. He also advocated reducing occupation forces, convoking a general peace conference of all the Allied nations, establishing German economic unity, revising German-Polish boundary lines, integrating the Saar with French economy, and concluding a forty-year, four power pact to guarantee German disarmament. On the other hand, he firmly opposed Russian demands for $10,000,000,000 in reparations from current German production and French requests for internationalization of the Ruhr.

After his return from Moscow Marshall disclosed (April 28) that Premier Stalin had expressed confidence that major Russian-United States differences could be compromised. Nevertheless, the Secretary blamed Russia for blocking progress and demanded that European recovery problems be met without delay.

In the field of foreign relief Secretary Marshall left a large imprint. He was instrumental in the framing of President Truman's program to bolster Greek and Turkish economies. Likewise, he proposed (June 5) that aid for European economic rehabilitation be provided on a long-range, integrated basis rather than through piece-meal appropriations. To implement the latter plan he requested European nations to agree jointly upon their requirements and the amounts each could contribute toward the program. If the United States did not provide assistance, he expressed (July 14) fear that Europe would be driven into the Communist orbit.

Charges that imperialism motivated American offers of foreign assistance Marshall denounced (July 1) as a "fantastic misrepresentation" and a "malicious distortion" of the truth. To the contrary, he said (Aug. 15), the United States wants only a free, prosperous, and peaceful world. He warned (September 10) that unless emergency food and fuel were provided Europe by the end of the year, there was danger (Oct. 15) of "disastrous disintegration." Accordingly, he presented (Nov. 10) Congressional leaders a $597,000,000 interim assistance plan for France, Italy and Austria and a four-year program for general European economic rehabilitation. To coordinate American relief operations he recommended appointing a special representative with ambassadorial rank. Administration of the short-term program was delegated (Dec. 26) to the Secretary of State by President Truman.

At the Inter-American Conference in Brazil Marshall insisted (Aug. 2) that only problems of mutual defense and security should be considered. He emphasized that, while the United States had "not lost sight of the economic problems of the Western Hemisphere," nations devastated by war had prior claim to American assistance. On his return to Washington the Secretary described (Sept. 4) the cooperation displayed at the conference as "the most encouraging, most stimulating international action since the close of hostilities."

For seven weeks in the fall Marshall attended the United Nations General Assembly meetings in New York. Before the session began he publicly asked (Sept. 14) the Assembly to provide means of protecting the territorial integrity and political independence of Greece, to find a solution for the Palestine problem, and to admit qualified nations to United Nations membership. To the Assembly itself he proposed (Sept. 17) also that it consider the problems of Korean independence and Security Council voting procedures and that it create a standing, interim committee of all member nations to review "situations and disputes impairing friendly relations."

On November 20 Marshall flew to London for the fifth session of the Council of Foreign Ministers. Before departing he had bitterly castigated (Nov. 18) the Russian government for waging "a calculated campaign of vilification" against the United States. Despite his hopes for progress, the three-week meeting proved to be fruitless. Marshall clashed with Molotov over such issues as the Polish-German frontier, economic integration of the Saar with France, participation of all the Allies in the peace conference, German economic unity, Russian reparations demands, and removal of German assets, and terms of the Austrian treaty. In proposing adjournment he placed responsibility for failure squarely upon the Soviet Union. Soon after returning to Washington Marshall told (Dec. 19) the nation that until healthy, vigorous governments were restored in Europe, "it does not appear possible that paper agreements can assure a lasting peace."

Secretary Marshall's stand on a number of other issues is worth noting. To promote world trade he favored (May 17) reaching an agreement on the International Trade Organization charter and opposed (May 29, June 12) placing a tariff on United States wool imports. He supported (May 22) transferring United States military and naval equipment to Latin-American nations and approved (June 25) giving Italy thirty-one American merchant ships. At Oxford University (where he was awarded an honorary degree) Marshall stressed (Nov. 22) the value of Anglo-American cooperation, which, he reassured (Dec. 12) a London audience, would not be endangered by the differences between British socialism and American capitalism.

In Far Eastern affairs Marshall decided (April 11) to proceed independently in Korea after the Joint Commission failed to establish a provisional central government, but he later agreed (May 2) to resume negotiations with the Soviet Union. For China he proposed (Nov. 12) a sizable aid program to begin in April, 1948. After the Soviet Union rejected (July 22) his suggestion that the Japanese peace treaty be written by the eleven nations represented on the Far Eastern Commission, Marshall likewise turned down (August 15) Russian proposals that only the United States, Great Britain, China, and the Soviet Union participate in the peace conference.

Although Marshall made no drastic reorganization of the State Department, some of its operational policies were improved and several personnel changes in key posts were made. Ten employees, dismissed (June 23) as "potential security risks" by the Secretary, were refused (Nov. 5) a departmental hearing because it would necessitate disclosing highly confidential information. Marshall promised, however, that formal hearings would be granted in such cases "wherever possible." Several times he appealed to Congress to appropriate funds requested for the State Department's international information and cultural activities, including the "Voice of America" broadcasts. State Department plans to take over administration duties in the occupied areas abroad were "indefinitely postponed" by Marshall in October.

EARL WARREN

Governor Earl Warren, the first California chief executive to win both the Republican and Democratic primary elections, in 1947 began his second four-year term and announced his candidacy for the 1948 Republican presidential nomination.

In his inaugural address Warren recommended (Jan. 6) a balanced budget, adequate maintenance of educational and other public institutions, and a statewide system of health insurance. Later he appealed (Jan. 13) to the legislature to enact higher gasoline taxes for the improvement of California's "congested, obsolete" highways, and he approved (Aug. 4) state laws banning secondary boycotts and jurisdictional strikes.

Contrary to other Republican leaders, Warren opposed (May 10) reducing Federal taxes until the national debt had been substantially lowered. At the annual Governors' Conference he objected (July 14) to a suggestion for eliminating tax duplication through the withdrawal of the Federal Government from the excise tax field and the abandonment by the states of income taxes, because he feared it might undermine the stability of state revenues and would be disadvantageous to the western states. However, he believed (Dec. 11) that a national agency should be created to survey and help rehabilitate American cities that were over-expanded and "disabled" because of the war.

In order that the United States be fully prepared against any future aggression, Warren advocated (July 29) universal military training. He warned (Sept. 11) that unless we were strong, Europe and our own nation would be open "to the inroads of international gangsterism." While he agreed that the United States should provide assistance under the Marshall plan, the California Governor wanted (Dec. 13) the amount for any country to be based not only on need but on such factors as its willingness to live peacefully and cooperatively and to attempt its own rehabilitation.

Despite frequent assertions that he was not a presidential candidate, Warren consented on Nov. 13 to the entering of his name in the California preferential primary. To set at rest speculation that he might accept second place on the Republican ticket, an idea which had been furthered by Governor Dewey's acclaiming (June 7) him a "scientist" in government and politics, Warren denied he was interested in the Vice-Presidency.

MRS. FRANKLIN D. ROOSEVELT

Again in 1947 Mrs. Franklin D. Roosevelt gained fame and praise as the foremost woman spokesman in the United States on world affairs. In addition to her official duties as delegate to the General Assembly and chairman of the Human Rights Commission of the United Nations, she continued to impress on the nation her ideas and opinions through her newspaper column, periodical writings, and frequent speeches.

Under Mrs. Roosevelt's chairmanship the Human Rights Commission in meetings at Lake Success and Geneva was able to draft an international "bill of rights" which it submitted to member nations for consideration. As a member of the General Assembly's Social, Humanitarian, and Cultural Committee she was effective in working for an extension of United Nations social welfare work, especially among war orphans and handicapped children, and in appealing for free speech and press throughout the world. In her reply to Soviet attacks on the "warmongering" activities of United States newspapers, she admitted (Oct. 6) that under a free press system some journals may abuse their privileges, but pointedly added that "a controlled press is like an egg, if any part of it is bad, the whole is bad." Moreover, she accused (Oct. 24) the Russian press of distorting American statements and conducting a propaganda campaign against the United States.

On numerous occasions Mrs. Roosevelt advocated the cause of the United Nations. The American people, she believed, were not thoroughly enough acquainted with its work nor sufficiently convinced of its vital role in maintaining world peace. Accordingly, she instituted (Oct. 5) a series of nation-wide broadcasts each week to clarify the United Nations' organization and operations. Moreover, she proposed (Aug. 2) that Congress should be represented at United Nations meetings. Although she favored (Jan. 26) giving United States' aid to stricken peoples throughout the world, Mrs. Roosevelt supported (May 15) modifying the Greek-Turkish relief program to permit United Nations' intervention. She approved both the bill to admit displaced persons to the United States and the plan to partition Palestine.

THE YEAR IN CONGRESS

By Mary Sumner Benson
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ORGANIZATION AND COMPOSITION

The Eightieth Congress convened Jan. 3, 1947 and adjourned July 27. Called back into session by President Truman, it reconvened on Nov. 17. Adjournment took place Dec. 19. The 1946 election had brought a party reversal. In the new Congress, the Senate contained 51 Republicans and 45 Democrats. The House had 245 Republicans, 187 Democrats, and one American Laborite. There were seven women members in the House. Senator Arthur Vandenberg was chosen president pro tempore of the Senate, and Joseph W. Martin, Jr., Speaker of the House. The majority leader in the Senate was Senator Wallace White, with Senator Alben Barkley as minority leader. In the House of Representatives Charles A. Halleck and former Speaker Sam Rayburn were selected as majority and minority leaders, respectively.

The Senate had difficulties in organization. Theodore G. Bilbo of Mississippi, who had served two terms as senator and had been chosen for a third term, had during the fall of 1946 been investigated by the Senate Committee on Campaign Expenditures on charges of responsibility for barring Negroes from the polls. A minority of the Committee had recommended that he not be permitted to take his seat. A Senate War Investigation subcommittee had found that Bilbo had accepted gifts from war contractors and had violated the Hatch Act. It recommended that the Senate take appropriate action. It was decided to seek to disbar him by a majority vote. Since his name came second on the list of Senators elected in 1946, the Republicans did not have a majority when his name came up. A deadlock arose which threatened to delay Senate organization. On Jan. 4, however, it was announced that Bilbo was seriously ill and in need of an immediate operation. It was, therefore, agreed to permit his credentials to be laid on the table without prejudice and without action until he had recovered. Senate organization, therefore, proceeded. Bilbo died later in the year so that the question was never reopened.

This was the first Congress to meet after the passage of the 1946 Reorganization Act which reduced the number of Senate standing committees from 33 to 15 and the House committees from 48 to 19. There were numerous subcommittees. In April the number had reached 146. In the Senate the special War Investigation Committee was continued by a vote of 49 to 43 with a proviso that it could not carry its inquiries into foreign countries or investigate "present" situations. The Senate also voted to continue its special committee on Small Business. There were several other select committees and some joint committees.

In November, when the session was resumed, one senator and seven representatives elect took their seats for the first time.

COURSE OF LEGISLATION

As the session opened, Congress was particularly concerned with labor legislation, tax reduction, and problems of the budget. Since these were highly controversial matters legislation proceeded slowly. Hearings on the confirmation of David E. Lilienthal as chairman of the Atomic Energy Commission occupied much of the time of the Senate Atomic Committee in the early part of the session. Then the request for aid to various European countries and the bill providing $400,000,000 for Greece and Turkey caused attention to shift to foreign affairs. These bills were passed in May as was the portal-to-portal pay bill. In June the first tax reduction measure was passed and vetoed. Four days later the Labor Management Act was vetoed. The veto was promptly overridden. Meanwhile there had been no decision on a legislative budget for the fiscal year beginning July 1. Practically every appropriation measure was the subject of extended hearings and compromises. The treaties with Italy and the satellite states were ratified in June. Rent controls were extended before the June 30 expiration date.

Most of the major appropriation bills were still incomplete when the fiscal year ended, and temporary provision had to be made to insure continued operation of various departments and agencies. Under the Reorganization Act of 1946, adjournment was to take place by July 31 unless there was an emergency. July, accordingly, was a crowded month. The remaining appropriation measures were passed, as was the defense bill establishing over-all unification of the armed forces. A second income tax reduction bill differing from the first only in its effective date was passed and vetoed. The bill altering the presidential succession was approved. Altogether there were over 200 bills awaiting the President's signature on July 27 as Congress adjourned, but many of them were routine measures. Generally considered as major accomplishments of the session were the Defense Act, the Labor Management Act, the Portal-to-Portal Pay Act, the Foreign Relief Act, Aid to Greece and Turkey, Rent Control Extension Act, War Powers Act, and the provision for payment of Veterans Terminal Leave Bonds. Tax Reduction and the Science Foundation measures had been effectively vetoed. Action was not completed on the bill for admission of displaced persons, the formal authorization for continuance of the State Department's cultural and information program, the program for hemisphere defense, nor on universal military training. It was estimated that the House had passed approximately 1,100 bills and the Senate about 800; 519 became law and 32 were vetoed.

Congress had adjourned subject to recall by the President or by its own presiding officers. This led to some discussion as to the nature of the session which reconvened Nov. 17 but it was rather generally considered as a special session. President Truman had asked consideration of emergency aid to France, Italy, and Austria, and the taking of anti-inflation measures at home. The first measure was passed with some reduction in the sum asked and with the addition of a limited amount of aid for China. A comparatively mild economic act wa passed lacking many of the control which had been requested. The specia session also received the details of th proposed European Recovery Program. It was expected that thi would receive early consideratio when the second session began Jan. 1948.

APPOINTMENTS

Gen. George C. Marshall wa unanimously confirmed as Secretary

State immediately after the Senate received his nomination on Jan. 8, 1947. Other confirmations in the field of foreign affairs were those of Warren R. Austen as United States representative to the United Nations Security Council and the Atomic Energy Commission of the U. N., O. Max Gardner as Ambassador to Great Britain, Mrs. Eleanor Roosevelt as a member of the U. N. Human Rights Commission, and Willard E. Thorp, Assistant Secretary of State, as assistant representative in the U. N. Economic and Social Council. Lewis Douglas was confirmed as Ambassador to Great Britain, replacing Max Gardner who died before assuming office. The nomination of Francis Biddle as representative to the U. N. Economic and Social Council was withdrawn by President Truman at Biddle's request after much opposition had been expressed.

Kenneth C. Royall was confirmed as Secretary of War in July. After the creation of the post of Secretary of Defense, James Forrestal was approved as the nation's first Secretary of Defense. Under Secretary of State Clayton was confirmed as Chairman of the European Economic Commission. Gen. Lewis B. Hershey received approval as director of the Office of Selective Service Records.

Frances Perkins received approval as member of the Civil Service Commission, Frank Creedon as Housing Expediter, Michael Foley as National Housing Administrator, and Joe B. Dooley as Federal judge for the Northern District of Texas. This last approval followed six months of delay. The nomination was approved by the senior senator from Texas and opposed by the junior senator.

One of the major struggles over an appointment was that of Gordon R. Clapp as chairman of the Tennessee Valley Authority. His name was presented in January. He was opposed particularly by one of the senators from Tennessee on charges that, as T. V. A. personnel director, he had permitted employment of well known Communists. His approval was refused 7 to 5 by the Senate Public Works Committee. President Truman then renewed his endorsement. He was finally confirmed on April 25 for the remainder of the term of David E. Lilienthal.

In December Jesse M. Donaldson was confirmed as Postmaster General and Carl R. Gray, Jr. as Veterans Administrator. The recess appointments of Abe Murdock and J. Copeland Gray to the National Labor Relations Board and of Robert N. Denham as general counsel for the Board were also confirmed.

ATOMIC ENERGY

On Jan. 31, 1947, the Atomic Energy Commission filed its first semi-annual report with Congress. This was chiefly a list of present activities, an outline of future procedures and a list of facilities taken over from the Manhattan district. None of the five men who signed the document had as yet been confirmed by the Senate. Discussion on confirmation centered about David E. Lilienthal as chairman of the Commission. He was named to the post by President Truman Oct. 28, 1946. A large number of witnesses were summoned, chiefly at the request of Senator McKellar of Tennessee. After six weeks the Senate Committee on Atomic Energy voted 8 to 1 to approve confirmation of Lilienthal and also, by varying votes, approved confirmation of Lewis L. Strauss, William W. Waymack, Robert F. Bacher and Sumner T. Pike as the other members of the Commission and Carroll L. Wilson as general manager for the Commission. After some debate from the floor the Senate voted 50 to 31 to confirm Lilienthal. Approval of the other appointees followed.

BUDGET AND TAXATION

Financial affairs were brought to the attention of the new Congress when President Truman on Jan. 8, 1947, made his report to Congress under the Employment Act of 1946. In this he suggested that taxes continue at war time levels. Two days later his budget message reached Congress. This presupposed that income tax rates would be held at their current level and provided for expenditures of $37,528,000,000 with revenues estimated at $37,730,000,000. Discussion began at once, for the majority party was pledged to reduce income taxes and to maintain a balanced budget. The presidential estimates included: $7,343,000,000, Veterans; $3,510,000,000, International Affairs; $11,081,000,000, Army and Navy; $5,000,000,000, Interest on National Debt; $645,000,000, Cost of Foreign Occupation; and $10,000,000,000, General Operations of Government. The President opposed reduction of income and excise taxes.

The Seventy Ninth Congress had voted for a new method of budgetary procedure. The budget was referred to the Joint Congressional Committee made up of 102 members from the Senate and House Appropriations Committees, the Senate Finance Committee, and the House Ways and Means group. A subcommittee of five members from each of these groups was named to study the budget in detail. The Joint Committee was to report a legislative budget by Feb. 15, 1947. On Feb. 11, the subcommittee voted to cut the presidential budget by $6,000,000,000 which it was thought would make possible a 20 per cent personal income tax reduction and still leave $3,500,000,000 for payment on the national debt. This was based on an assumed revenue of $39,100,000,000 for the 1948 fiscal year. On Feb. 14, the Joint Committee voted 50 to 22 for the reduced budget. There was much excitement and various compromise measures were proposed and defeated. The resolution went to Congress as the subcommittee had drafted it. On Feb. 20, the House voted 239 to 159 for the $6,000,000,000 reduction which put a "moral" ceiling of $31,500,000,000 on Federal spending. The Senate voted Feb. 26 to cut the presidential budget by $4,500,000,000. The vote of 51 to 33 was more or less bipartisan. Two days later the Senate voted unanimously for $2,600,000,000 payment on the national debt. This was later increased to $3,700,000,000 by adding funds from the disposal of war surplus property. The second resolution limited national spending to $33,000,000,000. The bill then went to conference with the House, but a formal meeting of the conference committee ended in deadlock, and no agreement was ever reached. It was apparent that the financial purposes of the Legislative Reorganization Act of 1946 had not been carried out.

The proposals for tax reduction led to struggles over cuts in appropriations and unprecedented delay in passing such measures. Only one major bill was ready for the presidential signature by July 1 when the new fiscal year began. This necessitated authorizing government agencies to continue expenditures at the old rate or the proposed one, whichever was lower, until the bills were adopted and led to some delays in the issuing of salary checks. When the session ended, Congress had allowed approximately $34,863,142,995 of the $37,640,566,095 asked in original and supplemental appropriations. This does not give an absolute picture of the difference because some of the bills included funds for expenditure after 1948. Claims and counter claims on savings were rife. The approximate amounts of the regular appropriation bills were as follows:

Treasury—Post Office	$3,216,500,000
Interior	194,587,000
Navy	3,269,000,000
State, Justice, Commerce departments and Judiciary	551,176,000
Agriculture	613,046,000
Labor—Federal Security	1,674,158,000
War Department—military functions	5,482,500,00
Independent Offices	8,188,823,00
Legislative Establishment	55,000,00
War Department—civil functions	502,123,00
District of Columbia supply	95,500,00
Government Corporations	35,040,00

Important also were some of the deficiency and supplemental measures The First Deficiency Appropriatio provided $2,830,000,000, of which $1 800,000,000 was for Veterans' Administration, $465,000,000 for Army pay, an $135,000,000 for grants to states unde the Social Security program. The First Supplemental Appropriation Act of $1,658,802,197 included the $400,000,000 for Greek-Turkish aid and $332,000,000 for relief to populations in areas occupied by the United States.

In the Agricultural Bill $150,000,000 for soil conservation and $65,000,000 for school lunch programs were included after much discussion. In the measure for the State, Justice, and Commerce departments, serious controversy arose over the appropriation for the Cultural activities of the State Department, particularly the "Voice of America," the overseas broadcast. The Department had asked $31,000,000 for the office of International Information and Cultural Affairs. The House Appropriations Committee objected that the foreign program had not been authorized by specific law, was not in accord with American precedents, and had been badly handled. Secretary of State Marshall and General Bedell Smith, ambassador to Russia, appealed for continuance of the program. A bill to give specific authorization passed the House but was blocked in the Senate; $12,400,000 was finally allotted for the purpose of which over $6,000,000 was for the "Voice of America."

One of the conspicuous features of the majority program was H. R. 1, the income tax reduction bill. This passed the House on March 27, 1947 by 273 to 137. The Senate passed an amended form of the bill May 28 by a vote of 52 to 34. After conference, the measure provided for 30 per cent cut for persons with net taxable incomes of $1000 or less. The reduction then dropped by degrees to 20 per cent cut on incomes from $1,395.83 to $136,720. Above that, reductions were smaller. The conference report passed the House 220 to 99 and the Senate 48 to 28. The President vetoed the measure June 16, stating that this was the wrong type of reduction at the wrong time and that it would increase inflation, that the country had ample funds for expansion, and that our international responsibilities and other obligations growing out of the war made tax reduction unwise. This particular measure, he thought, was inequitable, and he recommended planning for a thorough revision of the tax structure. The House voted 268 to 137 to override the veto. This lacked two votes of the two-thirds majority needed, and the veto was sustained. A week later the bill was reintroduced with the effective date changed from July 1, 1947 to Jan. 1, 1948. It passed the House by 302 to 112 and the Senate by 60 to 32. It was vetoed on July 18. The veto was promptly overridden in the House 299 to 108 but sustained in the Senate where the vote was 57 for overriding and 36 against, five votes short of the two-thirds majority.

A bill to reduce immediately excise taxes on fur, jewelry, luggage, and liquor was introduced at the beginning of the session. These taxes would have dropped automatically July 1 because of the President's proclamation of the ending of hostilities on Dec. 31, 1946. Instead, a bi-partisan bill was reported by the Ways and Means Committee to peg these taxes and those on railroad tickets and long distance telephone calls at war time rates. This passed both houses with certain modifications as to fur trimmed garments and tickets for foreign travel.

The Social Security tax was pegged at its present level of one per cent until Jan. 1, 1950. It is then to rise to 1½ per cent for 1950 and 1951 and to 2 per cent in 1952. Temporary increases in Federal aid to certain needy persons authorized in 1946 were continued until 1950.

In a final appropriation bill at the end of the reconvened session, $540,000,000 was voted for emergency relief abroad. Of this amount, $522,000,000 was for France, Italy, and Austria, the remainder for China. The sum of $340,000,000 was appropriated for the remainder of the fiscal year in American occupied areas; $500,000 was voted for a relief fund for the Navajo and Hopi Indians. A $2,000,000 fund had been authorized for this shortly before. Supplemental appropriations of $31,939,000 were made for four major reclamation projects in the western states.

DEFENSE

On Feb. 26, 1947, the President sent to Congress a proposal for a National Defense establishment. The bill represented compromise views of the Army, Navy, and Air Forces. The problem had been the subject of many hearings in the Seventy Ninth Congress. The House referred the bill to the Committee on Executive Expenditures. The Senate after some discussion over jurisdiction referred it to the new Committee on the Armed Services created by the Congressional Reorganization Act of 1946. Extensive hearings were held by both committees. Secretary of the Navy Forrestal, General Eisenhower, General Spaatz, Admiral Nimitz, Secretary of War Patterson, and Admiral Sherman all testified in favor of the measure. General Vandergrift, Marine Corps Commandant, Admiral Zacharias, and Admiral King opposed it as originally presented. The latter suggested instead the creation of a National Security Council. The Senate committee made some modifications in the original bill, especially those protecting the status of the Marine Corps and of naval aviation. The measure passed the Senate by voice vote July 9 without amendment. A substantially similar measure was approved by the House ten days later. Differences were quickly resolved in conference.

President Truman signed the measure July 26 and immediately nominated James Forrestal as Secretary of Defense. The Senate confirmed the appointment by voice vote just before adjournment. The bill left the Army, Navy, and Air Force each with its own department and secretaries, not of cabinet rank, but coordinated them under a Secretary of Defense. The President was to preside over a National Security Council made up of the heads of the units. The Council was to appraise the objectives, commitments, and risks of the United States in relation to military power and to make recommendations. Under the Council, a Central Intelligence Agency was to assemble and correlate intelligence relating to national security. This body was not given law enforcement powers nor internal-security functions. The heads of the three units were also to form the National Military Establishment under the Secretary of Defense, a Cabinet member. Functions were assigned to each of the three departments, and special provisions assured the continued integrity of the naval aviation service and Marine Corps. The Secretary of Defense was to exercise general direction and establish policies and programs, but the service secretaries might also report directly to the President. The Secretary of Defense was to be either a civilian or one who had not been a commissioned officer in active service for ten years.

A few days later a bill was approved which changed the methods of promotion for both Army and Navy. Qualifications for promotion were to be set by boards of officers, and failure to meet the standards set twice in succession would automatically drop an officer from the service. The number of four-star officers in peacetime was restricted to five in the Army, four in the Navy, four in the Air Force, and one in the Marine Corps. The President's Chief of Staff might also be a four-star officer while actually serving in that post. Limitations were also placed on the number of one-, two-, and three-star officers.

The Selective Service Act was to expire on March 31, 1947. Four weeks earlier President Truman sent Congress a message stating the needs of the Army and Navy in personnel for the fiscal year 1948, expressing the hope that these could be met by voluntary enlistments and recommending that no extension of Selective Service be made at that time but that the Army and Navy be permitted extra civilian personnel if necessary to balance any shortage of enlisted personnel. The needs of the Army were stated as 1,070,000 men, which included the Air Force, and those of the Navy as 571,000 including the Marine

Corps. This was shortly followed by a presidential request for immediate liquidation of the county offices of selective service. The Senate showed great reluctance to permit the system to lapse completely and passed a bill which continued the boards in nominal service against an emergency. It created the office of Selective Service Records which was to assemble such records for permanent storage in state capitals. This office was to liquidate the Selective Service system. The measure as modified by the House was signed by the President March 31. He immediately named Major Gen. Lewis B. Hershey, former director of Selective Service, to be director of the new office.

The President again asked Congress to consider universal military training. He submitted a report from his civilian advisory commission recommending this. No action was completed on the matter.

A bill for Inter-American Military Cooperation similar to one presented to the Seventy Ninth Congress was submitted by the President and was urged before the House Foreign Affairs Committee by Secretary of State Marshall and Secretary of War Patterson. Action was not completed.

Other measures extended indefinitely the volunteer enlistment age of 17 years for the Army, established an Army Nurse Corps with a total strength of six for each 1,000 of personnel in the regular army and reorganized the Nurse Corps of the Navy on the same basis. Pay of cadets and midshipmen at the service academies was increased to $936 annually. The law for appointing 25 midshipmen at large was changed to provide for the appointment of an additional 60 from enlisted men of the Navy and Marine Corps and 160 from the Naval and Marine Corps.

Construction of submarines for experimental purposes at a cost not to exceed $30,000,000 was authorized. Provision was also made for Congressional study of the means of building up an adequate rubber supply for defense purposes. It was provided that, until permanent legislation was passed, no synthetic rubber plant costing the Government more than $5,000,000 should be disposed of.

Racially inadmissible wives of members of the armed services married before Aug. 21, 1947 were permitted to enter the United States for permanent residence if they could meet other qualifications.

FEDERAL EMPLOYMENT

A measure signed July 7 created a 12-member commission to investigate all agencies of the Government and to report to the next Congress. The commission was to study limitation of expenditures, duplication of functions, abolition of unnecessary activities, and definition of the work of Federal agencies. The commission was to be bi-partisan, and six of the members were to be chosen from private life. Four were to be appointed by the President, four by the Speaker of the House, and four by the President of the Senate.

FOREIGN AFFAIRS

Peace treaties with Italy, Bulgaria, Hungary, and Rumania were sent to the Senate early in the year. Secretary of State Marshall and former Secretary Byrnes appeared before the Foreign Relations Committee in March, 1947 and recommended prompt ratification as necessary for national security. They came before the committee again on May 6 and urged speed. Secretary Marshall also read a letter from President Truman favoring action on the treaties. Three days later the committee approved them without reservations. On June 5, the Senate ratified the Italian treaty by a vote of 79 to 10 and the others by voice vote.

On April 8, President Truman withdrew 19 treaties which had been in the files of the Foreign Relations Committee for years—in one instance since 1910. Among these agreements was the treaty of 1932 with Canada for the completion of the St. Lawrence deep sea waterway.

On Dec. 8, the Senate ratified 72 to

1 the Inter-American Treaty of Reciprocal Assistance which provided for action by all contracting nations against armed attack on any American nation, for consultation in case of aggression and for peaceful procedures in settling disputes within the hemisphere.

On Feb. 24, President Truman sent a message asking authorization of United States membership in the International Refugee Organization the constitution of which had been signed by our representative to the United Nations. Participation was approved by the Senate March 25 with a rider added by the Foreign Relations Committee barring any softening of our immigration laws. The House passed the measure June 26 with some alterations to take care of the interim expected between the termination of UNRRA and the beginning of the IRO. As completed, the bill authorized a maximum contribution of $73,500,000 for the organization, with monthly payments to a provisional commission pending formal establishment of the organization.

On July 7, the President asked Congress to authorize the admission of a "substantial number" of displaced persons, especially those from eastern European countries who were unwilling to return to their former homelands for fear of political persecution. The message emphasized that this was not a request for general revision of immigration policies. No action was completed before adjournment although hearings had already been held on such a bill by a House Judiciary Subcommittee.

A trusteeship agreement authorizing United States administration of the Marshall, Caroline, and Marianas Islands, formerly mandated to Japan, was approved by the United Nations Security Council in April. In July, President Truman asked enabling legislation to permit him to put this into effect. It was approved promptly by both houses. The area will be known under United States administration as the "Territory of the Pacific."

The President was later authorized to enter an agreement with the United Nations for the establishment of permanent UN headquarters in this country.

President Truman asked for revision of the neutrality laws to give him discretionary power through a licensing plan to control exports of arms, but no action was completed in this matter.

The question of "cultural diplomacy" arose in connection with the appropriations for the State Department. A bill authorizing the department to conduct a foreign information and educational program to promote understanding of the United States abroad and for this purpose to use short wave radio broadcasts, news bulletins, publications and other media, passed the House 272 to 97. It was approved by members of the State Department and the Foreign Service. The Senate Foreign Relations Committee approved the measure, but action was not completed in the Senate. Some funds were made available for the work in the appropriation for the State Department but much less than had been requested. A special investigation of the foreign information program was voted by the Senate July 26. The House Foreign Relations Committee later decided to cooperate in this.

AID TO EUROPE AND CHINA

Of major importance in foreign affairs were the measures for aid to Europe, of which there were several which had far reaching effects on our foreign policy. On Feb. 21, 1947, President Truman asked for $350,000,000 for relief in liberated countries abroad. This was to be controlled by the United States rather than by an international agency. This was proposed in anticipation of the ending of UNRRA and was to be used for medical supplies, food, and items aiding in the production of foodstuffs. Hearings were held promptly, and the President conferred with Congressional leaders in a closed meeting at the White House. Action was delayed by the subsequent proposal for aid to Greece and Turkey. The measure underwent considerable amendment in the House Foreign Affairs Committee. This was chiefly to provide additional supervision. The House itself on April 30 voted 333 to 66 to pass the measure with the aid cut to $200,000,000. There was also a proviso that countries receiving aid must agree to the watching of distribution by United States missions all the way down to the local communities and that 90 per cent of the relief supplies must be purchased in the United States or its possessions. Two weeks later the Senate passed the bill 79 to 4 with the original sum intact. After conference, both houses agreed to the $350,000,000 with a proviso that this should include the U. S. share of the United Nations International Children's Fund; $5,000,000 was earmarked for transportation of relief supplies donated voluntarily. The measure specified that aid should not go to countries other than Austria, Greece, Hungary, Italy, Poland, China, or the Free Territory of Trieste. Provision was made for identifying all relief supplies so that the donor should be known. The bill was signed May 3. The appropriation bill in July cut the sum to $332,000,000, omitting funds for Poland and Hungary.

On March 3, 1947, President Truman appeared before a joint session of Congress and asked for aid for Greece and Turkey. It was stated that this was necessary if Greece was to remain a free nation. It was made part of a policy of helping free people to maintain their free institutions and national integrity against aggression. The sum asked was $400,000,000 for the period ending June 30, 1948. A tentative "deadline" of March 31 was suggested for passage. Action began promptly and extensive hearings took place. Under Secretary of State Acheson, Under Secretary of State for Economic Affairs Clayton, Secretary of War Patterson, Secretary of the Navy Forrestal, and others appeared before the committees of both houses, and the State Department submitted many documents dealing with conditions in the Near East. The measure was reported out by the Senate Foreign Relations Committee April 3 with certain modifications to prevent by-passing of the UN. The bill passed the Senate 67 to 23 on April 22 after 11 days of debate. On May 9, it passed the House 287 to 107. Slight differences in the two versions were quickly adjusted. The bill not only authorized the $400,000,000 but provided for the use of United States civilian and military personnel in those countries, the latter in an advisory capacity only. Pending the passage of an appropriation bill, $100,000,000 was made available immediately through the Reconstruction Finance Corporation. Other provisions safeguarded the utilization of the assistance. It was provided that the President should withdraw aid at any time if requested to do so by the governments of Greece or Turkey, if the Security Council or General Assembly of the United Nations found that UN action makes its continuance unnecessary or undesirable, if he found that its purposes had been substantially accomplished or could not be accomplished, or if he found that the contracting nation was not carrying out its agreement. Quarterly reports were to be made to Congress on the progress of the aid. The formal appropriation was made late in July in the same measure with the $332,000,000 for general foreign aid. With these, was joined an appropriation of $600,000,000 for relief to the people of countries occupied by the United States.

Before Congress adjourned the House provided for a special committee on foreign aid headed by Representative Eaton, chairman of the Foreign Affairs Committee and Representative Herter of Massachusetts. The committee of 19 members was authorized to travel wherever it seemed desirable and to investigate foreign affairs. It was to study the drain of foreign relief upon the United States, the needs of countries abroad, our resources and those of other countries which might be used to meet these needs, and to investigate agencies which might be used in relief. The membership was drawn from a number of House committees which might be concerned with some aspect of foreign aid. The committee was to report by March 1948. At the same time the House Foreign Affairs Committee had subcommittees authorized to visit various geographical areas and to report on conditions found in them.

Before the July adjournment members of both houses were much concerned about the European situation. Secretary of State Marshall had a long executive session with the Senate Foreign Affairs Committee in July and apparently discussed various aspects of the reconstruction of Europe. The problem was studied by members of Congress after adjournment. When President Truman called Congress back into special session, he named emergency aid to France and Italy and additional funds for occupied areas as important problems which could not wait until January. He also spoke of the need for beginning consideration of the long-range European recovery program. Congressional committees began hearings on these proposals before Congress reconvened. Secretary Marshall and Under Secretary Lovett of the State Department, Ambassador Douglas, Secretary of Commerce Harriman, all appeared in favor of the proposed interim aid measure which would have provided $597,000,000 for aid to France, Italy, and Austria until March 31, 1948. The money was to be spent for food, coal, petroleum, cotton, fertilizer, seed and medical supplies. Over half of this was for food.

Secretary Harriman explained the effects which sending the supplies would have on our domestic economy and the necessity of a food conservation program in this country. The House Select Committee on Foreign Aid also released seven reports of its investigations into conditions in France and Italy and in the key industries here which might be affected. The industries were grain, fertilizer, petroleum, steel and coal. The President in opening the session asked again for the emergency aid with $42,000,000 going to Austria, $227,000,000 to Italy, and $328,000,000 to France. On Dec. 1, the bill passed the Senate 83 to 6 with some amendments generally acceptable to the measure's sponsors. The bill did not reach the floor of the House until after the passage of the Senate version. There it was amended by provisions designed to lessen the impact of the aid on American economy, and the amount of assistance was cut to $590,000,000, of which $60,000,000 was to be for aid to China.
The House accepted this by voice vote
Dec. 11. Two days later conferees
agreed on a compromise bill which
was sent to the President Dec. 15
This authorized $597,000,000 in aid
France, Italy, Austria, and China were
listed as recipients but it was provided
that any funds for China might be
used for the other countries named to
the extent that aid for China was sup-
plied under other acts. Provision was
made for a wheat reserve of 150,000,-
000 bushels for the United States, but
the President could lower this if he
felt that the wheat prospectus at home
justified it. The President was also
authorized to terminate aid to any
country if he found that unde
changed conditions it was no longe
consistent with the national interest
No more than five per cent of th
supplies sent to any country were t
be "incentive goods" such as tobacc
intended to stimulate workers to pro
duce. The Reconstruction Financ
Corporation was authorized to mak
$150,000,000 available without waitin
for an appropriation bill. The Com
modity Credit Corporation was au
thorized to provide the relief progra
with any surplus supplies purchase
under the price control program. I
was also provided that procuremen
might be made from foreign sourc
whenever the cost delivered to the re
cipient country would be less than th
cost delivered from the United State
Ten per cent of the funds might b
used to purchase abroad commoditi
in short supply in the United Stat

at a delivered cost higher than if from the United States. As far as possible petroleum was to be procured from sources outside the United States.

Countries receiving aid were to enter into agreements with this country to use the commodities supplied efficiently and to take economic measures necessary for a self sustaining economy. Full publicity was to be given to the source and amounts of the aid furnished. Full information on the material received and the uses to which it was put was to be supplied by March 31, 1948 or as soon as possible thereafter. Representatives of the press and radio of the United States were to be permitted to observe and report on the carrying out of the program. The President was to report regularly to Congress on the operations under the act. The program was to terminate March 31, 1948. President Truman signed the measure Dec. 17.

An appropriation bill passed on the final day of the session gave $540,000,000 for carrying out the interim aid measure. It designated $18,000,000 for China. The same measure provided $340,000,000, a cut of $150,000,000 from the amount requested for occupation and relief costs in Germany, Japan, and Korea. The President signed the measure at once.

Long range aid to Europe had been suggested before the July adjournment but a presidential request on it awaited the results of the conference of western European nations in Paris during the summer and the reports of several committees named by the President. The Secretary of State and others made reference to the plan at the committee hearings before Congress reconvened and Secretary Marshall gave a summary of the general aspects of the plan. On opening Congress, the President made brief reference to the long-range plan. In one of its early reports the House Committee on Foreign Aid suggested that European nations could help in part to pay for United States assistance by giving this country access to strategic materials in various areas, thereby securing oil, iron, and other supplies for stockpiling.

On Dec. 19, just before Congress adjourned, President Truman sent a message outlining the European Recovery Program, asking for authority to spend $6,800,000,000 in the first 15 months of the plan. In the proposed bill, $17,000,000,000 would be authorized as the total expenditure. There would be an administrator at a salary of $20,000 and a deputy administrator in charge with 10 top rank assistants and 50 others with $10,000 salaries. There would also be a special ambassador in charge of the European phase of operations. The plan was to run for approximately four years. It was hoped that passage would take place in time to permit beginning operations by April 1, 1948. Some of the aid was to be provided as loans and some as gifts.

HOUSING

A long-range housing bill, similar to one passed by the Senate in 1946, was introduced in the Senate in March. It provided for coordination of existing housing agencies under a permanent National Housing Commission and for various steps to facilitate construction of 15,000,000 homes in the next 10 years. Action was not completed on this bill.

In May, President Truman submitted Reorganization Plan No. 3 which set up a Housing and Home Finance Agency to coordinate the work of the Home Loan Bank Board, Federal Housing Administration and the Public Housing Authority, and a National Housing Council with representatives from the three groups just named and from the Veterans' Administration, the Reconstruction Finance Corporation, and the Department of Agriculture. The House rejected the plan, but the Senate approved it, thereby automatically putting it into effect. The House in general was anxious to cut appropriations for various phases of housing. Its Appropriations Committee criticized severely the work of the Public

Housing Authority. Subcommittees of the Joint Economic Committee investigated housing in several areas between the regular and special sessions.

An increase of $400,000,000 of the total of mortgage insurance under the National Housing Act was passed. The same bill permitted the insurance of mortgages on surplus permanent housing sold by the government.

INFLATION

In his message to Congress Nov. 17, President Truman suggested three curbs to inflation: the reduction of monetary pressure by control of credit and prevention of excessive speculation, the allocation of scarce goods to essential uses, and the establishment of price ceilings and controls in essential fields. The last included extension of rent control and authorization of consumer rationing on basic products in short supply. The following week, the Chairman of the Federal Reserve Board asked for authority to require all commercial banks to maintain a "special reserve" to reduce the "swollen money supply" and suggested the application of various other curbs. On Dec. 9, the Administration submitted the draft of a bill to give the President broad allocation and rationing powers until March 31, 1950. This would have included government purchase of the wheat crop, consumer rationing of fuel and many foods, an extension of wartime allocation powers over iron and steel, the extension of export controls and of authority to allocate transportation facilities and equipment.

Three days later, another bill was submitted by the Administration providing for establishment of price controls on basic commodities in short supply which had risen unreasonably in price since June 1947. The following day, the Congressional leaders presented a joint resolution which provided a one-year extension of export controls and authority to allocate transportation facilities. It authorized voluntary agreements between the Administration and representatives of business, industry, and agriculture with immunity from anti-trust laws. These agreements might cover allocation and inventory control of basic commodities in short supply, regulation of speculative trading on commodity exchanges, and marketing of livestock and poultry in the way that represented the most efficient utilization of grain. Additional gold reserves were also required of Federal Reserve Banks. The provision for increasing the reserves was later struck out. A voluntary food conservation program in the United States and one for promotion of food and livestock production in non-European countries was authorized. The President was requested to submit to Congress a detailed program to parcel out cost-of living items when they reached the "critical shortage" stage. It was suggested that Congress act on such programs within 15 days. The Presiden was given power to halt use of grain by distilleries until Feb. 1, 1948. Thi passed the Senate on Dec. 18 by vote of 77 to 10 and the House of Dec. 19.

GRAIN SPECULATION INVESTIGATION

While the anti-inflation measure were before Congress the Senate Appropriations Committee undertook a investigation of Federal governmen employees who might be speculatin in grain or commodity exchange The Secretary of the Army was aske to check persons in his departmen with access to Army recommendation on purchasing. Similar requests wer made of the State, Defense, Agricu ture, and Commerce department The Army Food Administrator wa questioned about the price paid fo Cuban sugar purchased through th Commodity Credit Corporation. O Dec. 11, Secretary Royall reporte that he had questioned 300 officia with access to information on pr jected Army purchases and none them had reported any speculativ transactions. He said that he had no asked that direct question of Edw W. Pauley, Special Assistant to th

Secretary of the Army, because Pauley had not had access to any information which could have been beneficial in commodity trading. He stated that he had reminded Pauley of a promise made when he took the post in September to liquidate his grain holdings as rapidly as possible under the capitol gains statute. Pauley replied that he was doing so. The Senate Committee summoned him to appear. On questioning he stated that he had owned about 500,000 bushels of grain when he accepted the post and had liquidated 90 per cent of it at a considerable loss to himself. He also said that he had not taken part in any transactions relating to purchases while in the department. He was questioned somewhat more about his transactions, and there was some discussion as to the propriety of gambling in food.

The Committee then moved to investigate other departments. Secretary of Agriculture Anderson was asked to produce a list of large scale speculators in commodity markets. Secretary Anderson appeared before the committee but expressed doubt as to his legal right under the Commodity Credit Act to make the information public and suggested that Congress adopt a resolution directing him to turn over the desired names. Such a resolution passed both houses and was signed by the President as Congress adjourned. The House of Representatives had voted to establish a committee to study commodity gambling. The list of names was expected to be supplied to both committees shortly. The House also voted to investigate the "steel gray" market.

SENATE WAR INVESTIGATION

It was decided early in the session to continue the Senate War Investigating Committee. The new chairman was Senator Owen Brewster of Maine. In March the Committee questioned James A. Moffet, formerly an international oil operator and later Housing Administrator, who reported that the Navy had lost heavily on oil deals in the Middle East. He testified that Arabian oil had been offered the Navy at 40 cents a barrel in 1941, that the offer had been rejected, and that the Navy had later to pay $1.05 a barrel for it. The whole case was quite complex and involved Saudi Arabian politics and concessions made to several American oil companies in that area. The Committee asked the President to ask the executors of President Roosevelt's estate to turn over certain papers relating to the case. For a time a stalemate developed on this, but later President Truman made available photostatic copies of some of the documents. The Committee appointed former Senator Burton K. Wheeler, who had investigated the Teapot Dome Scandals in the 1920's, as special investigator. Wheeler was in private law practice which he did not wish to give up. Therefore Congress passed a measure which exempted him from this requirement. President Truman vetoed this bill in his first veto of the session on the ground that the measure as drawn might be understood as giving the Committee counsel power to initiate civil or criminal proceedings on behalf of the United States. A redrafted version of the bill was signed by the President but by that time Wheeler had resigned the post and the Committee announced that it did not contemplate hiring any other counsel. No final report was made on the oil question.

In July the Committee reported that the work of the War Department on the Inter-American Highway had added $36,000,000 to the cost of the war without contributing to the defense of the United States. Both the planning of the project and the efficiency with which it was carried out were called into question.

THE HUGHES AIRPLANE HEARING

In February 1947, the Committee heard Howard Hughes, airplane manufacturer, report in closed session on his contract for a 200-ton seaplane, a project in which the Government had invested $18,000,000. The work was begun in 1942 without the approval of the War or Navy departments. The order for the planes came from the War Production Board and was financed by the Defense Plant Corporation. After questioning Hughes, the Committee decided to continue the investigation. Later Senator Brewster reported that Hughes asked for an inquiry into his affairs. A subcommittee sent to Hollywood to do this reported its testimony to the full Committee in July. At that time Senator Brewster announced that there had been "political pressure" to stop the inquiry. Public hearings were begun immediately after Congress adjourned and were followed with much interest. It appeared that in 1944 the War Production Board ordered cancellation of the contract but Jesse H. Jones, former Secretary of Commerce, testified that President Roosevelt had ordered its continuance on the ground that the experience gained from completion of one plane would be of too great value to throw away the money already expended. Then a new contract for only one plane was given with the arrangement that Hughes, who was making no profit, was to bear all losses beyond the $18,000,000 which the Government had given. Henry J. Kaiser, who had been a member of the original corporation, and Hughes were both questioned as was John W. Meyer, public relations man for Hughes. All sorts of charges were made, including one that the committee chairman had offered to quash the investigation if Hughes would withdraw his objection as controlling owner of one company to the merger of two major overseas air lines. This was promptly denied under oath. Another charge was that the Committee was especially interested in linking the investigation to a member of the family of the late President Roosevelt. This was denied by the assistant counsel to the committee under oath. Many personalities were exchanged. This aspect of the inquiry ended in mid-August when Hughes declared that he would exile himself from the country if the flying-boat turned out to be a total failure.

THE GEN. MEYERS INQUIRY

Later the subcommittee began t check steps taken to safeguard the government against improper actions of high ranking procurement officers The inquiry soon centered on Majo Gen. Bennett E. Meyers, retired, wh had been a procurement officer fo the Army Air Forces. It appeare that in 1943 he had held $35,074 i aviation stock but had failed to disclose this to his superiors in respons to a questionnaire. Later, the holdings were transferred to his wife wh held them under her maiden name The date of transfer, according t brokers' record, was actually mor than a year after the date of the questionnaire. An extensive series of hearings followed this disclosure. Fro these it appeared that General Meyer was perhaps secretly in control of war-contracting corporation while h was engaged in air force procurement He also acknowledged marginal dealings in government war bonds. I some of his testimony he was though to have laid himself open to charge of perjury. The evidence gathered b the subcommittee was transferred t the Department of Justice, the Burea of Internal Revenue, and the Arm Air Forces, all of which took appropriate steps to meet the situation.

The Committee also heard testimony on alleged excessive profit made by large oil companies on wartime contracts. Recommendations fo future renegotiations of similar contracts were made. Inquiry was mad into delays in bringing the 1939 industrial mobilization program int effect.

HOUSE COMMITTEE ON UN-AMERICAN ACTIVITIES

Another committee which attracte much public attention during the yea was the House Committee on Un-American Activities. The chairma of the committee after the Januar organization was Representative J Parnell Thomas of New Jersey. A the beginning of the year the outgoing committee recommended legislation to combat subversive elements. This included, first, a requirement that only American citizens be allowed to hold office in labor unions subject to Federal laws; second, denial of second class mailing privileges to foreign language newspapers not carrying a translation in adjacent columns; third, the creation of an independent commission to investigate and order the discharge of any government employee whose loyalty was doubtful and several other measures of a similar nature.

The Committee summoned Gerhart Eisler, alleged head of Communist activities in the United States, to appear before it. Eisler appeared but refused to testify and was cited by the House for contempt by a vote of 370 to 1. The House continued its investigation of Communism and held extensive hearings on a bill to outlaw the Communist Party. One of the witnesses was William C. Bullitt, former ambassador to Russia, who described the party as an agent of the Soviet Government but opposed the law because it might make "martyrs" of party members. J. Edgar Hoover of the Federal Bureau of Investigation testified that the party was a "fifth column." Eugene Dennis, general secretary of the American Communist Party, appeared as voluntary witness but refused to answer the question as to his "real name." He was then given a subpoena and required to appear before the Committee two weeks later. He did not appear but sent a statement defying the Committee and was at once cited for contempt. This was upheld later by the House. Similar proceedings were taken against Leon Josephson, alleged Communist passport ring leader who refused to testify before a subcommittee and refused to be sworn at a committee hearing. The cases were turned over to the Department of Justice. Eisler was convicted on June 10.

In September, the Committee held a three-day hearing on the case of Johannes Eisler, a brother of Gerhart, and an admitted former German Communist. Eisler was a musician whose entry into the country had apparently been championed by several prominent Americans who considered him a refugee from Naziism. The Committee recommended that he be prosecuted for perjury and for illegal contriving of entry into the United States and accused immigration officials of laxity in permitting him to take permanent residence here.

In the spring, Eric Johnston, president of the Motion Picture Association of America, appeared before the Committee. He denounced Communism but indicated opposition to the outlawing of the Communist Party, suggesting instead that Communist activities be prosecuted under sedition and treason laws. He stated that Communists the world over hated American films, and that though there were no doubt Communists in Hollywood their influence had not reached the screen. Members of the Committee suggested the presence of Communist forces in the industry. In October the Committee began an inquiry into Communist propaganda in the films. First various witnesses from Hollywood accused some screen writers and directors of Communism. Later these individuals were questioned. Ten of them refused to tell the House whether they were Communist party members and challenged the Committee's right to ask the question. They were cited for contempt, a measure later overwhelmingly approved by the House. Demonstrations and a spotlight of publicity accompanied all the investigation of the film industry. The Committee also described the organization American Youth for Democracy as communistic and urged state governors and college and university officials to bar it from American campuses. A subcommittee was named in March to investigate Fascist organizations in the United States.

OTHER INVESTIGATIONS

In July the Senate authorized major inquiries as a basis for future legislation into the operations of the Reconstruction Finance Corporation and the Social Security program. During the summer a special investigation into food costs was made for the use of several subcommittees of Congress. The House gave special powers of investigation including full authority to conduct hearings with the power to issue subpoenas to the Committee on Expenditures in the Executive Department. Special committees on small business and on the supply of newsprint were also created by the House. Final reports had not been made by most of these groups at the end of the year.

PORTAL-TO-PORTAL PAY

Portal-to-portal pay was a problem at the opening of the session as the result of a Supreme Court decision in June 1946 which had brought about a large number of back pay suits. Several bills on this subject were introduced early in January. A fairly stringent measure passed the House by a vote of 345 to 56 on Feb. 28, 1947, and a slightly different one was voted by the Senate 64 to 24 on March 21. On May 1, the measure as adjusted by conference went to the White House. This barred existing and future claims for portal-to-portal back pay unless such suits were based on bona fide employer-employee contracts or were recognized as being in accord with custom in the area concerned. Compromises would be permitted only within the framework of hourly wage standards of 40 cents with 60 cents for over time. There was a two-year limit on filing claims under the existing Wages and Hours law. Group claims required a written order from each employee covered. Employers would be exempt from liability on past claims if any government agency had approved the wage already paid. President Truman signed the bill, stating that he did so because in the interest of economic stability it was essential to clarify the issue. In the message accompanying his signature he urged increase of the minimum wage from 40 cents to 65 cents an hour and extension of the law to many persons not presently covered.

ANTI-STRIKE MEASURES

Even greater interest was shown in anti-strike measures. Many hoped for a stronger version of the Case bill vetoed in 1946, and several bills were presented at the opening of the session. The House Labor Committee held extensive hearings and drafted a sweeping labor control bill reported to the House on April 12. Five days later this was passed 308 to 107 by a vote which to some extent crossed party lines. Ninety-three Democrats supported the measure and 22 Republicans opposed it. A much milder bill passed the Senate May 13 after three weeks of debate. Conference negotiations lasted also for three weeks. The measure finally producd was substantially the Senate version. This continued the National Labor Relations Board but increased the membership to five and made future appointees subject to Senate confirmation. A general counsel at a salary of $12,000 was added also, subject to confirmation. Federal injunctions were permitted against strikes menacing public health or safety. The National Labor Relations Board was permitted to obtain injunctions against jurisdictional strikes, secondary boycotts, or strikes to force an employer to hire unneeded men. Unions were made liable for employer damage suits for jurisdictional strikes, secondary boycotts, or violation of contracts. Bargaining rights were denied to supervisory workers. Officials of all unions seeking certification as bargaining agents were required to swear that they were not Communists and might be prosecuted for false swearing. Employer contributions to welfare funds were permitted if union and management administered the funds jointly. Employers were permitted to address workers on labor matters if this was done without threats or promise of benefits. This Labor-Management Relations Act of 1946 was considered one of the most difficult legislative achievements of the session. It was approved by the House by 320 to 79 and by the Senate with a 54 to 17 vote.

On June 20, President Truman vetoed the bill, charging that it would reverse the basic direction of our national labor policy, inject the Government into private economic affairs on an unprecedented scale, and conflict with important principles of our democratic society. He thought the measure unworkable and likely to increase strikes, unfair to workers and annoying to employers. The emergency procedure for major strikes was too complex. The House promptly overrode the veto 331 to 83. In the Senate, delaying action prevented an immediate vote. Senator Morse talked for 10 hours. The Senate remained in session for 28 hours and 32 minutes before a proposal for an agreed time of voting was accepted. The total continuous session was nearly 31 hours, the longest Senate session since 1927. The purpose of the delay was a hope that lapse of time and outside pressure would effect a change of sentiment. On June 23, however, the Senate overrode the veto by 68 to 25. Twenty Democrats voted with the majority, 22 to sustain the veto.

The Senate later named seven members of a joint committee on Labor Management to watch the operation and administration of this act and to study labor relations in many aspects. The committee was given initial funds of $150,000.

OTHER LABOR MATTERS

Lesser labor activities included a report in January of the 1946 special House campaign investigating committee that it had turned over to the Department of Justice information indicating that 60 CIO unions and locals and 11 corporations had violated the Corrupt Practices Act in the 1946 Congressional election. The House Labor Committee of the Eightieth Congress also conducted several investigations, one into the relations of the American Newspaper Guild and the striking employees of certain Philadelphia and New Jersey papers. A subcommittee made a long study of the 1941 strike at the Allis-Chalmers plant in Milwaukee and reported that it was apparently called by direction of the Communist Party. The Labor Committee adopted the conclusions of the subcommittee but withheld the full report from publication at the request of the Department of Justice. The report was then given to that Department to be used as evidence of false testimony given by Harold Christoffel and Robert Buse, union leaders at the plant.

PRESIDENTIAL TENURE AND SUCCESSION

A constitutional amendment to limit presidential tenure to two terms passed the House by a vote of 285 to 121. The Senate adopted the amendment 59 to 23; it then went before the states for ratification. The proposal prohibited any person from being elected more than twice but permitted a vice-president who had succeeded to the presidency to serve two additional full terms if he had not served for more than two years of his predecessor's unexpired term. The States were given seven years in which to ratify the proposal. This does not apply to the incumbent president or to anyone who is president when the measure becomes operative.

The law governing the presidential succession was changed. For many years, succession following the vice-president had been vested in the Cabinet beginning with the Secretary of State and continuing with all Cabinet posts created before 1886. President Truman requested a change soon after he took office in 1945. pointing out that it was undesirable to have a situation in which a President might be naming his own successor. The new law placed the Speaker of the House first in the event of the death, removal, resignation or inability of both President and Vice-President to serve. He was to be followed by the President Pro Tempore of the

Senate and then by the Cabinet in order, beginning with the Secretary of State and including the Secretaries of Agriculture, Commerce, and Labor.

SCIENCE RESEARCH

A measure to establish a national science foundation passed both houses and was sent to the President July 22. He pocket-vetoed it Aug. 6 with a strong note of disapproval. The agency which would have succeeded the wartime Office of Scientific Research and Development would have had 24 members appointed by the President with Senate confirmation. These men, eminent in fields of fundamental sciences, medical science, education, engineering, or public affairs, would have been required to promote basic research by grants, scholarships and other forms of assistance to individuals, institutions and organizations and to coordinate their programs with those undertaken by individuals and other research groups. The foundation would have appointed special commissions to survey research in particular fields. President Truman had long favored a national science foundation but objected to the administrative system provided in this bill. He felt that it vested full authority in 24 part-time officers whom the President could not hold responsible for proper administration. Moreover, the director of the Foundation, appointed by the Foundation, would not be directly responsible to the President. President Truman expressed the hope that the measure would be passed in an acceptable form at the next session.

TERRITORIES

A bill to admit Hawaii as the 49th state passed the House of Representatives in June. Action was not taken by the Senate. A measure was passed giving miners in Alaska permission to mine for gold and other precious metals in navigable streams there. Miners had feared effects of a recent court ruling. A measure passed at the close of the session gave the people of Puerto Rico the right to elect their governor. President Truman, in signing the bill, expressed regret that it had been passed too late in the session to permit amendment to allow the governor to appoint members of the Supreme Court of Puerto Rico.

VETERANS

On July 7, the House voted 386 to 0 to permit approximately $1,792,000,000 to $2,000,000,000 in terminal leave bonds to be cashed, beginning Sept. 1 1947, by former members of the armed forces. The bonds distributed in 1946 were designed originally to mature in five years. The Treasury protested that the measure would prove inflationary. The measure also extended until Sept. 1, 1948 the time in which former service men might apply for benefits. On July 19, the measure was unanimously adopted by the Senate. President Truman signed the bill a week later but advised veterans not to cash the bonds which carry 2½ per cent interest if held.

The War Veterans Act of 1924 was amended to permit for an additional five-year period the renewal of five-year level-premium government life insurance policies.

The sum of $35,500,000 was authorized for veterans' temporary housing The money was to be used by the National Housing Administrator to complete work on over 8,000 housing units begun by state or local units, educational institutions, or non-profit organizations.

WAR POWERS

The President asked early in the session that some parts of the Second War Powers Act be extended for another year, especially those which permitted allocation of powers by executive action if the President declared a state of emergency. Seven of the 14 titles of the original act had already been permitted to lapse. President Truman asked extension of three of those remaining. Shortly thereafter he asked repeal of a number of wartime laws. The First Decontrol Act of 1947, passed in March 1947, removed many wartime controls but gave a three-months extension for allocations of cinchona bark, fiber, tin, and certain other materials and facilities certified by the Secretaries of State and Commerce as necessary to meet international commitments. In the Second Decontrol Act most of these controls were continued until March 1, 1948. The second act also extended the wartime export-import controls and the controls over rail facilities exercised by the Office of Defense Transportation. The bulk of the war powers were ended by a measure signed by the President July 25. Controls over exports and over transportation facilities were extended to Feb. 28, 1949 by the act passed in December to combat inflation.

WARTIME CONTROLS

Federal controls over consumer installment credit were ended as of Nov. 1. As the measure passed the House, it provided for immediate lifting of the restrictions but the provisions were modified in conference. President Truman stated in signing the measure that he did so with reluctance but that three additional months of control were better than none.

Rent control was much discussed. On April 1, President Truman sent a plea for its continuance through June 30, 1948. Bills which passed the House on May 1 and the Senate on June 2 differed on a number of details. Conferees agreed on a measure which extended controls to March 1, 1948 but permitted an increase of 15 per cent over existing ceilings if the tenant agreed and a lease running through 1948 were signed. Signing of such a lease rendered the housing unit no longer subject to Federal rent control.

Transient accommodations of various sorts were decontrolled as were housing units completed after Feb. 1, 1947 and residential structures converted to rental use after that date. Control over evictions was largely returned to the states. Local rent boards were established to recommend area-wide ceiling increases or decontrol. A number of building control regulations were lifted. The modified measure passed the House 163 to 73 and the Senate by a voice vote. It was signed by the President on June 30, the date when controls would otherwise have expired, accompanied by a message explaining that the measure was the lesser of two evils and asking for legislative action to promote construction of various types of housing.

In a deficiency appropriation measure completed March 12, it was provided that the Office of Price Administration be terminated by June 30. Sufficient new funds were granted the agency to supply terminal leave pay of O.P.A. employees as required by law.

Legislation extending rationing and price control of sugar until Oct. 31, 1947 was signed on March 31 just before the time at which rationing would have expired. The measure contained a proviso that individuals receive at least 20 pounds each during the seven months extension period.

WOOL TARIFF

On June 19, Congressional action was completed on a measure which continued domestic wool-price subsidies and authorized the President to restrict to half the normal volume the amount of wool which could be brought in from abroad or to impose additional tariff on wools if importations interfered with the domestic price program. This was vetoed on the ground that it would have an adverse effect on our international relations and was not necessary for the support of domestic wool growers. The President expressed willingness to sign a measure continuing price support to domestic producers at not less than 1946 price levels. This was to be done through the agency of the Commodity Credit Corporation. A measure without the objectionable provisions was passed promptly.

MISCELLANEOUS LEGISLATION

An act was passed changing the name of Boulder Dam to Hoover Dam. A measure was approved authorizing the Government to continue to operate a tin smelter at Texas City until June 30, 1949. This was to be done by the Reconstruction Finance Corporation. Annuities were provided for Federal Bureau of Investigation agents who had served 20 years or more and were 50 years of age or older. A bill was approved providing for re-establishment of sugar quotas which had been suspended during the war. President Truman pocket-vetoed a measure which would have provided subsidies for non-ferrous metals. Legislation was passed making Federal surplus property available to state and local agencies for flood relief. An anti-poll tax bill was passed in the House by a vote of 290 to 112 but no action was taken by the Senate.

The presidential Reorganization Plan No. 2 which would have given the Labor Department permanent control over the United States Employment Service and transferred the functions of the Wages and Hours Administrator to the Secretary of Labor was rejected by both House and Senate. No objection was made to Plan No. 1 which concerned chiefly the internal organization of the War and Navy Departments. Plan No. 3 dealing with Housing, was rejected by the House but approved in the Senate The President had requested a Federal health program. Hearings on measures dealing with this were held in both houses but no action was completed.

The Reconstruction Finance Corporation was extended to June 30, 1948 with a limitation of $2,000,000,000 on its lending authority for new business. The life of the Commodity Credit Corporation was extended to the same date. The Farm Labor Supply program was continued to Dec. 31, 1947 with provision for liquidation of the program.

A temporary Congressional Aviation Policy Board of 10 members was established. Five were to be appointed by the President pro tempore of the Senate and five by the Speaker of the House. The board was to study national defense, commerce, postal and other aviation problems and report to Congress by March 1, 1948

The three-cent rate on first class letters was made permanent. All other postal rates which would have expired on June 30, 1947 were retained

THE SUPREME COURT AND CONSTITUTIONAL LAW

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GENERAL

During the year 1947 there were no changes in the personnel of the Supreme Court. The Court decided 136 cases with opinion, well over half of which were marked by dissents. In 23 cases, four justices dissented, and in 21 cases three dissented. The recent tendency of the justices to write separate concurring and dissenting opinions remained strong. In the cases which raised major constitutional issues it was not uncommon to find three, and even four opinions being filed. In the John L. Lewis contempt case five opinions were written. Justice Frankfurter persisted in his practice of writing separate concurring (or dissenting) opinions in cases with constitutional issues.

As has been true of the present Court in earlier years, it is difficult to classify the nine justices according to their differing views. The concurring and dissenting groups are constantly shifting. On the other hand, where the Court is divided, five to four, Justices Black, Douglas, Murphy, and Rutledge often stand together in the minority, and Chief Justice Vinson and Justices Reed, Frankfurter, Jackson, and Burton make up the majority.

Certain general tendencies can be

noted briefly. Judicial review of legislation, Federal and state, was a very minor aspect of the Court's work in 1947. The constitutionality of Federal statutes was an issue in not more than half a dozen cases, and no Federal law was held invalid. Cases involving state laws were somewhat more numerous but in almost all of these the challenged legislation met the test of constitutionality.

As the exercise of the Court's power of judicial review has declined, the very great power which the justices wield in interpreting statutes is seen in a stronger light. In more than one third of the cases heard by the Court in 1947, it was called upon to interpret Federal laws. The Fair Labor Standards Act was involved in nine cases and the National Labor Relations Act in five. The following Federal statutes figured prominently in Supreme Court decisions: the Sherman Act and other anti-monopoly laws, Interstate Commerce Acts, Social Security Act, OPA legislation, Federal Employers' Liability Acts, Bankruptcy Act, Transportation Acts. Norris-LaGuardia Act, Selective Service and Training Act, patent laws and tax laws.

The increasing reluctance of the Court to reach the merits in cases raising constitutional issues was apparent during the year. The Court continues to adhere to its policy of "strict necessity" in disposing of constitutional issues. This policy can be seen, for example, in the *Petrillo* case in which the Court subjected the Act of April 16, 1946, curbing labor practices in radio broadcasting, to a very limited test of constitutionality.

CLASSIFICATION OF CASES

The most important decisions of general public interest made by the Supreme Court in 1947 do not range widely through the traditional areas of constitutional law. About half of the cases described in this article are concerned with crimes and criminal procedure, Federal and state. In perhaps no previous year in the Court's history have there been so many cases dealing with such issues as the nature of the crime of treason, the right to habeas corpus, the right to assistance of counsel, the right to trial by jury, and the rights to be free from self-incrimination, unreasonable search and seizure, and cruel and unusual punishment. The tendency of the present Court to review a relatively large number of Federal and state criminal proceedings in which charges of miscarriage of justice have been made has led many people to view this Court as the most civil liberty-minded one in our history. However, in many of the 1947 cases in this category, a majority of the justices failed in the end to provide the accused person with relief. This result has raised fears that the Court is growing more conservative in its disposition of civil rights cases.

Freedom of religion was an issue in one of the most important cases of the year, the New Jersey bus case. Freedom of the press figured in the Texas newspaper contempt case. There were two major labor cases, those involving the well-known labor leaders, John L. Lewis and James Caesar Petrillo. The constitutionality of the Hatch Act, which limits the political activity of government employees, was tested in two cases. Federal-state relations, an issue that has loomed large in other years, figured in few important cases. It was present, however, in *United States v. California,* in which title to the oil rights lying within the three-mile limit off our coastline was disputed by the Federal and state governments. It was also present in several cases, which are part of a never-ending series, involving conflict between the Federal commerce power and the state taxing power. One such case resulted in the invalidation of a New York tax falling upon the stevedore business—one of the very few instances in 1947 in which the Court held legislation unconstitutional.

STATE CRIMINAL PROCEDURE—BLUE RIBBON JURY CASE

New York State has a statute, dating back to 1901, by which special cases in counties with more than 1,000,000 people can be tried by so-called blue ribbon juries. A judge may at his discretion order the use of such a jury in civil or criminal cases at the request of either party. "The motion may be granted only on a showing that 'by reason of the importance or intricacy of the case, a special jury is required' or 'the issue to be tried has been so widely commented upon . . . that an ordinary jury can not without delay and difficulty be obtained' or that for any other reason 'the due, efficient and impartial administration of justice in the particular case would be advanced by the trial of such an issue by a special jury.'" More than 100 convictions for murder have taken place under this statute.

In New York County, the operation of the law shrinks the regular jury panel from about 60,000 names to about 3,000. Four additional tests of qualification and fitness beyond those used for regular jurymen are employed in selecting special juries. For example, the fourth of these tests eliminates from the blue ribbon jury panel, "all who doubt their ability to lay aside an opinion or impression formed from newspaper reading or otherwise, or to render an impartial verdict upon the evidence uninfluenced by any such opinion or impression, or whose opinion of circumstantial evidence is such as would prevent their finding a verdict of guilty upon such evidence, or who avow such a prejudice against any law of the state as would preclude finding a defendant guilty of a violation of such law, or who avow such a prejudice against any particular defense to a criminal charge as would prevent giving a fair and impartial trial upon the merits of such a defense, or who avow that they can not in all cases give to a defendant who fails to testify as a witness in his own behalf the full benefit of the statutory provision that such defendant's neglect or refusal to testify as a witness in his own behalf shall not create any presumption against him."

This statute was held constitutional by a five-to-four vote in *Fay v. New York* and *Bove v. New York* (June 23). Fay and Bove, labor union officers, were found guilty of extortion in a New York court. There was evidence that they had accepted $300,000 from private contractors doing business with New York City. Their trial was by a special blue ribbon jury. The convictions were affirmed by the New York appellate courts, and the Supreme Court granted certiorari.

In the majority opinion by Justice Jackson, joined by Vinson, Reed Frankfurter, and Burton, it is stated that "the question is whether a warranted conviction by a jury individually accepted as fair and unbiased should be set aside on the ground that the make-up of the panel from which they were drawn unfairly narrows the choice of jurors and denies defendants due process of law or equal protection of the laws in violation of the Fourteenth Amendment to the Federa Constitution." On its face, the act i held to meet the test of constitutionality because it does not exclude any person from a jury because of race color, creed, or occupation. It is hel that such a law can relieve a congested court situation by bringin about the early rejection of person as jurors, many of whom would late have to be excused by the court o challenge for cause. Justice Jackso argues that the Supreme Court mus be careful "not to hamstring loca authority by artificial or doctrinair requirements" with respect to "practical matters in administering justice. The majority also rejects a contentio that the act, if valid on its face, ha been administered unconstitutionall in Fay and Bove's case. It is held tha there is insufficient evidence to support the charge that laborers an women have been systematically excluded from juries under the act. Fa and Bove also argued that blue ribbo juries are more prone than ordinar juries to convict. A 1938 report of th New York State Judicial Council i cited to this effect. Its studies sho that, in 1933, special juries convicted in 83 per cent of the cases, while ordinary juries convicted in only 43 per cent of the cases. Moreover, in 1945 the Council proposed that the special jury "be abolished as unnecessary and undesirable." The Supreme Court holds that the 1933 figures are too old to carry weight. Justice Jackson does suggest that, if a similar discrepancy could be proved for 1945, "some foundation would be laid for a claim of unequal treatment." But he intimates that such a wide discrepancy no longer existed in 1945.

The dissenting opinion is by Justice Murphy, joined by Black, Douglas, and Rutledge. Statistical evidence showing the systematic exclusion of certain occupational groups from blue ribbon juries is accepted as valid by the dissenters, who then observe that "the equal protection clause of the Fourteenth Amendment prohibits a state from convicting any person by use of a jury which is not impartially drawn from a cross-section of the community. And a cross-section of the community includes persons with varying degrees of training and intelligence and with varying economic and social positions."

THE RIGHT TO ASSISTANCE OF COUNSEL

In 1932 in *Powell v. Alabama* (287 U. S. 45), the Supreme Court for the first time ruled that the right to the assistance of counsel, which is guaranteed to all accused persons in the Federal courts by the Sixth Amendment, is carried over into the area of state criminal procedure by the due process clause of the Fourteenth Amendment. Thereafter, in a series of conflicting rulings the Court has sometimes ruled that the right is available in the state courts, sometimes unavailable. Three cases raised the issue again during 1947, and the decisions in these cases have not dispelled the confusion created by the earlier rulings. In *De Meerleer v. Michigan* (Feb. 3), a unanimous Court in a per curiam opinion holds that the right has been improperly denied to a 17-year-old youth who in 1932 was convicted in a Michigan court of first degree murder and sentenced to life imprisonment. The trial judge failed to explain to him the consequences of his plea of guilty, and at no time during the proceedings did he enjoy the benefit of counsel, nor was he ever advised of his right to it. "Here a seventeen year old defendant confronted by a serious and complicated criminal charge was hurried through unfamiliar legal proceedings without a word being said in his defense."

A contrary result prevailed by five-to-four votes in *Foster v. Illinois* and *Gayes v. New York* (both June 23). In the *Foster* case, the Court reviews the conviction of two defendants in 1935 in an Illinois court on a charge of burglary and larceny. Both men pleaded guilty after the judge had advised them of the consequences of such a plea. However, he had not offered them the assistance of counsel, and Illinois law did not require that he do so. Ultimately, an original proceeding was had in the Illinois Supreme Court by way of writ of error to test the validity of the sentences of imprisonment. When the writ was denied, the United States Supreme Court granted certiorari.

In the majority opinion, Justice Frankfurter, joined by Vinson, Reed, Jackson, and Burton, holds that there has been no miscarriage of justice. It is stated that the due process clause of the Fourteenth Amendment does not subject the states to the fixed requirement of the Sixth Amendment as to assistance of counsel. However, the majority holds that "process of law in order to be 'due' does require that a state give a defendant ample opportunity to meet an accusation. And so, in the circumstances of a 'particular situation,' assignment of counsel may be 'essential to the substance of a hearing' as part of the due process which the Fourteenth Amendment exacts from a state which imposes sentence." But there must be a showing that, for want of benefit of counsel, "an ingredient of unfairness" has "actively operated in the process" that results in a man's confinement. In the opinion of the majority no such "ingredients" were present in this case. Justices Black and Rutledge filed separate dissenting opinions, all four dissenting justices (Black, Douglas, Murphy, and Rutledge) concurring in both opinions. Justice Black charges "in this case the Court . . . waters down the Bill of Rights guarantee of counsel in criminal cases." And further, "this decision is another example of the consequences which can be produced by substitution of this Court's day-to-day opinion of what kind of trial is fair and decent for the kind of trial which the Bill of Rights guarantees." In the Rutledge opinion, the dissenters take the position that, even if the Sixth Amendment's guarantee is not to be held automatically applicable in state criminal cases, the record in the case discloses a lack of due process of law.

In the *Gayes* case a lad of 16 pleaded guilty in 1938 to a charge of burglary and larceny. He was offered counsel, but he refused the offer and was committed to a state vocational school. In 1941, following his release, he again pleaded guilty to a similar charge and was sentenced. To avoid serving a sentence as a second offender he endeavored to have the judgment in the first case vacated because of his lack of counsel. The same majority as in the *Foster* case fails to reach the merits, holding that Gayes should have contested the validity of the first sentence when he was about to be sentenced a second time. The four dissenting justices are of the opinion that Gayes' procedure was proper under New York law, that the Supreme Court should consider the case on its merits, and that the record discloses Gayes had improperly been denied assistance of counsel contrary to the Fourteenth Amendment.

THE RIGHT TO BE FREE FROM SELF-INCRIMINATION

The conflict between the two points of view which are now held by members of the Supreme Court concerning the extent to which the Bill of Rights is reenacted for the states by the Fourteenth Amendment is nowhere better illustrated than in the opinions in *Adamson v. California* (June 23). In this case, the Court was invited to reverse the 40-year-old holding of *Twining v. New Jersey* (211 U. S. 78 1908) that the Fourteenth Amendment does not compel the states to grant persons accused of crime freedom from self-incrimination. This freedom is recognized in Federal criminal procedure as the result of the specific language of the Fifth Amendment. Adamson was convicted of murder in the first degree in a California court and was sentenced to death. He did not take the witness stand. A California statute, unlike the law of most states, permits the failure of an accused person to testify in his defense to be commented upon by court and counsel and to be considered by a jury. Adamson's conviction was affirmed by the California Supreme Court, and he appealed to the United States Supreme Court, challenging the constitutionality of the California statute.

In the majority opinion by Justice Reed, joined by Vinson, Jackson, and Burton, the Court holds that the self-incrimination clause of the Fifth Amendment is not made effective as a protection against state action by the Fourteenth Amendment, and also that this freedom is not inevitably associated with the concept of due process of law. "For a state to require testimony from an accused is not necessarily a breach of a state's obligation to give a fair trial." In a separate concurring opinion, Justice Frankfurter asserts that the decision in *Twining v. New Jersey* was one of the greatest in the Court's history and should certainly not now be reversed. Moreover, he specifically and vigorously rejects the notion that the due process clause of the Fourteenth Amendment applies all of the Bill of Rights to the states. "The notion that the Fourteenth Amendment was a covert way of imposing upon the states all the rules which it seemed important to Eighteenth Century statesmen to write into the Federal Amendments was rejected by judges who were themselves witnesses of the process by which the Fourteenth Amendment became part of the Constitution." Instead, Frankfurter holds the Supreme Court must use its discretion in reading into the due process clause of the Fourteenth Amendment only those rights which are basic and fundamental to justice.

Justices Black, Douglas, Murphy, and Rutledge dissent from the Court's ruling. Justice Black, joined by Douglas, makes a specific attack upon Justice Frankfurter's position and argues that it is dangerous to let the Supreme Court define due process of law in changing fashion in the light of the sense of "civilized decency" and "fundamental liberty and justice" prevailing at any given moment. Instead, he would give to procedural due process a fixed meaning by holding that its limits are determined by the specific guarantees enumerated in the first eight amendments. ". . . I would follow what I believe was the original purpose of the Fourteenth Amendment—to extend to all the people of the nation the complete protection of the Bill of Rights. To hold that this Court can determine what, if any, provisions of the Bill of Rights will be enforced, and if so to what degree, is to frustrate the great design of a written Constitution." And he virtually accuses the majority of considering "the Bill of Rights to be an outworn 18th Century 'strait jacket' as the Twining opinion did."

In a separate dissenting opinion, Justice Murphy, joined by Rutledge, agrees with Justice Black that all of the guarantees of the Bill of Rights are carried over into the Fourteenth Amendment, but he asserts that there may well be other guarantees which are also included in the Fourteenth Amendment.

THE RIGHTS TO BE FREE FROM DOUBLE JEOPARDY AND FROM CRUEL AND UNUSUAL PUNISHMENTS

Louisiana ex rel. Francis v. Resweber (Jan. 13) presented such an unusual situation that Justice Reed, who writes the majority opinion, is led to comment that "this case is without precedent in any court." Willie Francis was duly convicted of murder in a Louisiana court in September 1945, and was sentenced to be electrocuted. On May 3, 1946, he was placed in the chair. The switch was thrown but "because of some mechanical difficulty, death did not result." No further attempt was made at that time to complete the electrocution, and before a new attempt could be made at a later date Francis was allowed to appeal to the courts on the ground that his execution under the circumstances would deny him his rights to be free from double jeopardy and cruel and unusual punishments. The Louisiana Supreme Court refused to help Francis on the ground of a lack of any basis for judicial relief. The United States Supreme Court then granted certiorari.

A Supreme Court majority (Reed, Vinson, Black, and Jackson) assumes, but does not decide, that the Fourteenth Amendment safeguards the two rights in question against state encroachment, but it holds that neither right has been denied to Francis. As to the double jeopardy issue, the Court holds that "when an accident with no suggestion of malevolence, prevents the consummation of a sentence, the state's subsequent course in the administration of its criminal law is not affected on that account by any requirement of due process under the Fourteenth Amendment. We find no double jeopardy here . . ." As to the second issue, the Reed opinion holds that, to compel Francis to undergo the psychological strain of preparation for electrocution a second time, will not amount to cruel and unusual punishment. Nor will the result be a more severe punishment than that ordinarily imposed on others for the same crime, amounting to a denial of equal protection of the laws.

In a separate concurring opinion, Justice Frankfurter once more seizes the opportunity to consider the rela-

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tionship between the Bill of Rights and the Fourteenth Amendment. "In an impressive body of decisions this Court has decided that the Due Process Clause of the Fourteenth Amendment expresses a demand for civilized standards which are not defined by the specifically enumerated guarantees of the Bill of Rights. They neither contain the particularities of the first eight amendments nor are they confined to them." Accordingly, "great tolerance toward a state's conduct is demanded of this Court." Since Justice Frankfurter can not say that what is happening to Willie Francis is "repugnant to the conscience of mankind" or "offends a principle of justice 'rooted in the traditions and conscience of our people,'" he does not think the Court should intervene under the Fourteenth Amendment.

Attention is called in the dissenting opinion by Justice Burton, joined by Douglas, Murphy, and Rutledge, to "the contrast . . . between instantaneous death and death by installments." It is pointed out that electrocution was originally upheld, against the argument that it is cruel and inhuman, on the ground that death takes place instantaneously (*Re Kemmler,* 136 U. S. 436, 1890).

It is suggested that repeated application of electricity to cause death is like burning at the stake, and is cruel and unusual. And "lack of intent that the first application be less than fatal is not material." The dissenters would send the case back to the Louisiana Supreme Court for a factual determination as to whether an electric current actually passed through Francis when he was placed in the chair the first time.

FEDERAL CRIMINAL PROCEDURE —RIGHT TO BE FREE FROM UNREASONABLE SEARCH AND SEIZURE

The troublesome issue of search and seizure returned to the Court in one of the most controversial cases of the year, *Harris v. United States* (May 5). Harris was convicted in a Federal court under the Selective Service and Training Act of 1940 for unlawful possession and alteration of Notice of Classification Cards and Registration Certificates. The Circuit Court of Appeals affirmed the conviction, and the Supreme Court took the case on certiorari. Two warrants of arrest (but not a search warrant) had been issued to FBI agents, charging violations of the Mail Fraud Act and the National Stolen Property Act. Five agents went to Harris' apartment and arrested him in the living room under these warrants. A search of the entire apartment was made to find evidence relating to the forging of a $25,000 check drawn on the Mudge Oil Company. The search lasted five hours and, in the words of a dissenting opinion by Justice Murphy, the agents "literally tore the place apart from top to bottom, going through all of petitioner's clothes and personal belongings, looking underneath the carpets, turning the bed upside down, searching through all the bed linen, opening all the chest and bureau drawers, and examining all personal papers and effects. Nothing was left untouched or unopened." No evidence pertaining to the forgery was discovered and Harris was never prosecuted for this offense, but in the course of the search the draft cards were found in a bureau drawer in a bedroom, and this evidence resulted in Harris' conviction for a totally different crime from the one for which he was arrested.

There are four opinions in the case. That for the majority is by Chief Justice Vinson, joined by Black, Reed, Douglas, and Burton. The Court holds that officers can properly search all of the rooms of an apartment at the time an arrest is made under a warrant of arrest. "The search was not a general exploration but was specifically directed to the means and instrumentalities by which the crimes charged had been committed. . . ." There is a review of Supreme Court rulings as to search and seizure which leads the Chief Justice to conclude that the objects which may properly be seized under a search warrant or during a search incident to arrest include "the instrumentalities and means by which a crime is committed, the fruits of crime such as stolen property, weapons by which the escape of the person arrested might be effected, and property the possession of which is a crime. . . . Here during the course of a valid search the agents came upon property of the United States in the illegal custody of the petitioner . . . A crime was . . . being committed in the very presence of the agents conducting the search. Nothing in the decisions of this Court gives support to the suggestion that under such circumstances the law-enforcement officials must impotently stand aside and refrain from seizing such contraband material."

The three dissenting opinions in the case are all strongly worded. Justice Frankfurter, joined by Murphy and Rutledge, states that "if one thing on this subject can be said with confidence it is that the protection afforded by the Fourth Amendment against search and seizure by the police, except under the closest judicial safeguards, is not an outworn bit of Eighteenth Century romantic rationalism but an indispensable need for a democratic society." In Frankfurter's opinion the search made at the time of an arrest, without a search warrant, must be limited to what is incidental to the arrest—it may not include an indiscriminate search of all a man's belongings. ". . . the warrant for the arrest of a person carries with it authority to seize all that is on the person, or in such open and immediate physical relation to him as to be, in a fair sense, a projection of his person." Finally he asserts that, even if the search in this case be held reasonable, the seizure was not. If the FBI agents had had a search warrant for the forged check they would not have been entitled to seize other items. Thus, "the Court's decision achieves the novel and startling result of making the scope of search without a warrant broader than an authorized search."

Justice Murphy, joined by Frankfurter and Rutledge, in a second dissenting opinion, asserts that "the Court today has resurrected and approved, in effect, the use of the odious general warrant or writ of assistance, presumably outlawed forever from our society by the Fourth Amendment."

Justice Jackson in a lone dissenting opinion disagrees with the other dissenters that the length or thoroughness of the search somehow made it improper. He believes that "the fair implication of the Constitution is that no search of premises, as such, is reasonable except the cause for it be approved and the limits of it fixed and the scope of it particularly defined by a disinterested magistrate."

THE RIGHT TO HABEAS CORPUS

The Supreme Court has in recent years had several occasions to examine the right of members of the Jehovah's Witnesses sect to secure judicial review of draft board rulings denying them exemption from military service on religious grounds. In *Falbo v. United States* (320 U. S. 549 1944), the Court held that under the draft legislation Falbo was not entitled to judicial review of a selective service order. In *Estep v. United States* (327 U. S. 114 1946), this ruling was modified somewhat, and the Court held that limited judicial review could be had by a registrant who has first exhausted his administrative remedies.

Two additional cases involving the draft troubles of Jehovah's Witnesses were decided by the Court in 1947. In *Sunal v. Large* (June 23), the Court passed upon the use of the writ of habeas corpus by a registrant as a means of securing judicial review of his draft classification. Sunal and Kulick registered under the draft legislation but claimed exemption as ministers. They were refused exemption by their draft boards and ordered to report for induction into the armed services. They reported but refused to submit to induction. Thereafter they were indicted, convicted, and sentenced to imprisonment for a term of years. Neither appealed since the state of the law at the time made appeal seem futile.

The following year, the Supreme Court handed down its ruling in the *Estep* case and in the light of this decision it was plain that the trial court had committed an error in excluding evidence in behalf of Sunal and Kulick that their draft boards had exceeded their jurisdiction in making the classifications which they did. Shortly after the *Estep* ruling, petitions for writs of habeas corpus were filed in behalf of both men. In each case, a Circuit Court of Appeals held that habeas corpus was an available remedy. The two cases ultimately reached the Supreme Court by the certiorari route, and a majority of six justices held that habeas corpus was not a proper or available remedy under the circumstances.

In the opinion by Justice Douglas, joined by Vinson, Black, Jackson, Reed, and Burton, it is stated that "the normal and customary method of correcting errors of the trial is by appeal. So far as convictions obtained in the federal courts are concerned, the general rule is that the writ of habeas corpus will not be allowed to do service for an appeal." It is admitted that there are exceptions to this rule. ". . . where the error was flagrant and there was no other remedy available for its correction, relief by habeas corpus has sometimes been granted." One exception recognized by the Court is where the state of the law governing a man's case has changed after the time for appeal has expired. But Sunal's case is held not to be of that type. Here, "the definitive ruling on the question of the law had not crystallized. If in such circumstances, habeas corpus could be used to correct the error, the writ would become a delayed motion for a new trial, renewed from time to time as the legal climate changed."

In the first of two dissenting opinions Justice Frankfurter argues that earlier Supreme Court rulings concerning the use of habeas corpus "give dubious and confused answers" to the question of its availability. Here "is an untidy area of our law that calls for more systematic consideration . . ." He reviews the different situations in which the use of the writ for appeal purposes has been allowed and concludes that its use here should be permitted "to prevent a complete miscarriage of justice." In the second dissenting opinion, Justice Rutledge, joined by Murphy, states that "the writ should be available whenever there clearly has been a fundamental miscarriage of justice for which no other adequate remedy is presently available."

Cox v. United States (Nov. 24) concerned three Jehovah's Witnesses who had been classified as conscientious objectors. As ministers, they claimed the right of total exemption from the draft, and they absented themselves without leave from a civilian public service camp. They were tried and convicted under the Selective Service Act. The trial judge directed the jury not to concern itself with the validity of the classification orders. On appeal to the Circuit Court of Appeals the convictions were affirmed and the Supreme Court granted certiorari. In the majority opinion, Justice Reed, joined by Vinson, Jackson and Burton, Frankfurter concurring in the result, rules that the petitioners are entitled to question the validity of selective service classifications as a defense in a prosecution for absence without leave. But he holds that a court review is allowable only where the draft board's classification has no basis in fact. Here the Court believes there was an adequate factual basis for refusing to classify the men as ministers. In one dissenting opinion, Justice Douglas, joined by Black, agrees with the majority that a review is allowable only where there is no factual basis for a classification, but he feels that here the local draft boards had no factual basis for denying the men classifications as ministers. In a second dissenting opinion Justice Murphy, joined by Rutledge, holds that a draft board classification can serve as a basis for a criminal prosecution only if it is supported by evidence of a substantial nature. To his way of thinking the evidence here is not substantial.

THE CRIME OF TREASON

In 1945, the Supreme Court for the first time in its history interpreted the treason clauses of the Constitution, which state: "Treason against the United States, shall consist only in levying war against them, or in adhering to their enemies, giving them aid and comfort. No person shall be convicted of treason unless on testimony of two witnesses to the same overt act, or on confession in open court." The opportunity came in *Cramer v. United States* (325 U. S. 1) in which the Court by a five-to-four vote set aside a treason conviction on the ground that at Cramer's trial two witnesses had testified only that the defendant had met and talked with enemy agents, and that this fell short of an adequate showing that he had given them aid and comfort. *Haupt v. United States* (March 31), like the *Cramer* case, grew out of the landing on our shores in 1942 of eight German saboteurs from an enemy submarine (see *Ex parte Quirin,* 317 U. S. 1 1942). Haupt was the father of one of these eight saboteurs and was accused of sheltering his son, and helping him get a job and purchase an auto, all with knowledge of his son's mission. The son's mission was to go to Chicago, gain employment at a plant manufacturing Norden bombsight parts, where he had once worked, and gather information for use by his fellow saboteurs. He was arrested six days after his arrival in Chicago, having been under constant surveillance by government agents. Haupt, Sr. was tried twice for the crime of treason and convicted both times. The first conviction was set aside by a Circuit Court of Appeals under the rule of the *Cramer* case (136 F2d 661). At his second trial two witnesses testified as to each of the three overt acts mentioned above. However, these acts were all covered by a single count in the indictment, and the Supreme Court agreed that a fatal deficiency as to any one of the acts must invalidate the conviction.

The majority opinion by Justice Jackson, joined by Vinson, Black, Reed, Frankfurter, Rutledge, and Burton, affirms the conviction, holding that it properly meets two tests. First, it is held that Haupt's acts really did give aid and comfort to an enemy. "They have the unmistakable quality found lacking in the *Cramer* case of forwarding the saboteur in his mission." Moreover, Haupt did not merely "act as an indulgent father toward a disloyal son." His words and actions show disloyalty to the United States, and Jackson holds that the jury could properly have concluded that "the son had the misfortune of being a chip off the old block." Second, it is held that the testimony of the two witnesses to each of the overt acts was adequate. For example, two FBI agents had testified as to the comings and goings of the two Haupts, which indicated their presence together in the father's apartment. The Court observes: "It is not necessary to show that (the son) slept in the defendant's bed. Herbert was neither trespasser nor loiterer. He entered as the licensee of his father. . . ."

In a separate concurring opinion, Justice Douglas approves the result but implies that the Court's action amounts to a repudiation of the *Cramer* rule that there must be two witnesses to an overt act which is on its face treasonable. To his way of thinking the testimony of the two witnesses need prove neither that an overt act is treasonable in intent nor treasonable on its face. These conditions can properly be inferred from all the circumstances surrounding the act.

Justice Murphy alone dissents. He asserts, ". . . an act of providing a meal to an enemy agent who is also one's son retains the possibility of having a non-treasonable basis even when performed in a treasonable setting; accordingly, it can not qualify as an overt act of treason. . . . Only when the alleged overt act manifests treason beyond all reasonable doubt can we be certain that the traitor's stigma will be limited to those whose actions constitute a real threat to the safety of the nation."

FREEDOM OF RELIGION

The First Amendment provides that "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; . . ." For more than 15 years the Supreme Court has held that the Fourteenth Amendment makes the prohibitions of the First Amendment applicable to state and local governments (see *Near v. Minnesota,* 283 U. S. 697 1931). In one of the most controversial cases of the year, *Everson v. Board of Education of Ewing* (Feb. 10), the Supreme Court for the first time passed upon the "establishment of religion" clause of the First Amendment. In this case, by a five-to-four vote, the Court holds that the use of public funds to transport pupils to parochial schools does not amount to action "respecting an establishment of religion." A New Jersey statute authorizes local school districts to make rules and contracts for the transportation of school children. The Board of Education of the town of Ewing authorized by resolution the reimbursement of parents for money spent by them to transport their children by regular bus lines. The town operated no school buses of its own. Reimbursement was limited to children attending public or parochial schools (there was no showing as to whether the town contained any non-parochial private schools). Everson sued in a state court, challenging the right of the school board to reimburse parents of parochial school pupils.

The New Jersey Court of Errors and Appeals held that neither the statute nor the resolution was in conflict with the state or Federal Constitution, and Everson appealed to the United States Supreme Court. The majority opinion is by Justice Black, joined by Vinson, Reed, Douglas, and Murphy. The action of the school board is upheld as being a use of public funds for the welfare of the general public and not for the support of schools teaching religion. It is suggested that the expenditure is analogous to providing a policeman to regulate traffic near a parochial school. On the other hand, the majority opinion states: "The 'establishment of religion' clause of the First Amendment means at least this: Neither a state nor the Federal Government can set up a church. Neither can pass laws which aid one religion, aid all religions, or prefer one religion over another. . . . No tax in any amount, large or small, can be levied to support any religious activities or institutions, whatever they may be called, or whatever form they may adopt to teach or practice religion. Neither a state nor the Federal Government can, openly or secretly, participate in the affairs of any religious organizations or groups and vice versa."

There are two dissenting opinions. That by Justice Jackson, joined by Frankfurter, is brief. The school board resolution is said to be discriminatory because its benefit is limited to public and Catholic school children alone. Accordingly, the purpose would seem to be not solely to protect the welfare of children in going to and from school, but to provide aid to these schools. And it is asserted that "the Court today is unconsciously giving the clock's hands a backward turn."

Justice Rutledge, joined by Frankfurter, Jackson, and Burton, dissents at length. The decision is called a breach in the wall between church and state. And, "that . . . others will be attempted, we may be sure." There is a protest against giving "religion" a broad meaning when the issue is the constitutionality of laws, such as ordinances restricting the distribution of handbills, which are said to hamper the activities of religious groups, and a narrow meaning when the issue is the use of public funds to aid religious groups. ". . . the sphere of religious activity, as distinguished from the secular intellectual liberties, has been given . . . twofold protection and, as the state cannot forbid, neither can it perform or aid in performing the religious function." And again: "Legislatures are free to make, and courts to sustain, appropriations only when it can be found that in fact they do not aid, promote, encourage, or sustain religious teaching or observance, be the amount large or small. No such finding has been or could be made in this case."

FREEDOM OF THE PRESS

In *Bridges v. California* (314 U. S. 252 1941) and in *Pennekamp v. Florida* (328 U. S. 331 1946), the Supreme Court set aside rulings of state courts holding newspaper publishers in contempt of court because of writings criticizing court procedures. In these cases, the Court "forbade the punishment by contempt for comment on pending cases in absence of a showing that the utterances created a 'clear and present danger' to the administration of justice." The same result prevails in *Craig v. Harney* (May 19). The publisher, an editorial writer, and a reporter of three Corpus Christi newspapers were found guilty of constructive criminal contempt by a Texas court and sentenced to jail for three days. They had criticized a county judge for his handling of a local case as to which of two parties was to be the tenant of the "Playboy Cafe." They had called his action taking the case from the jury "arbitrary" and a "travesty on justice" and had claimed that a serviceman "seems to be getting a raw deal." The judge held that these statements were designed to prejudice and influence him in his ruling on a motion for a new trial, then pending. The Texas Court of Criminal Appeals affirmed the contempt ruling, and the Supreme Court granted certiorari.

The majority opinion is by Justice Douglas, joined by Black, Reed, Rutledge, and Burton. The Supreme Court makes "an independent examination of the facts" and finds that the articles "did not reflect good reporting." They gave "an unfair report of what transpired." But they did not create "any imminent or serious threat to a judge of reasonable fortitude. The vehemence of the language used is not alone the measure of the power to punish for contempt. The fires which it kindles must constitute an imminent, not merely a likely, threat to the administration of justice. The danger must not be remote or even probable; it must immediately imperil. . . . The law of contempt is not made for the protection of judges who may be sensitive to the winds of public opinion. Judges are supposed to be men of fortitude, able to thrive in a hardy climate."

There is a separate concurring opinion by Justice Murphy in which he says that for a judge "silence and a steady devotion to duty are the best answers to irresponsible criticism."

The first of two dissenting opinions is by Justice Frankfurter, joined by Vinson. He asserts that, in cases of this type, the Supreme Court should respect the judgment of the highest state court where it has reviewed the facts and has come to the conclusion that a clear and present danger exists that a judge is being intimidated by newspaper articles.

In a second dissenting opinion by Justice Jackson, it is said: "The right of the people to have a free press is a vital one, but so is the right to have a calm and fair trial free from outside pressures and influences." Jackson is worried lest the press of the country take the majority opinion to mean that the Supreme Court is indifferent toward irresponsible attacks upon courts and judges. The decision sponsors "the myth that judges are not as other men are, and that therefore newspaper attacks on them are negligible because they do not penetrate the judicial armor."

JUDICIAL REVIEW OF FEDERAL LEGISLATION

In two cases, *United Public Workers of America v. Mitchell* and *Oklahoma v. United States Civil Service Commission* (both Feb. 10), the Hatch

Act of 1940 successfully met the test of constitutionality. Section 9 of the statute forbids employees in the executive branch of the Federal Government (with certain exceptions) from taking "any active part in political management or in political campaigns." The penalty is dismissal from the public service and a ban on reemployment. Poole, a roller in the Government mint, was a ward committeeman who was active on election day as a worker at the polls. He and 11 other appellants sought injunctive relief and also a declaratory judgment against the Civil Service Commission to prevent it from enforcing the law. Justices Murphy and Jackson took no part in the case and the other justices divided four to three. The majority opinion is by Justice Reed, joined by Vinson, Frankfurter, and Burton. The Court reaches the merits only in Poole's case, holding that the other appellants have not yet been affected by the statute. It holds that Poole, as a government employee, is properly subject to a limitation of his political activities. "Congress and the President are responsible for an efficient public service. If, in their judgment, efficiency may be best obtained by prohibiting active participation by classified employees in politics as party officers or workers, we see no constitutional objection." In a brief concurring opinion, Justice Frankfurter indicates that he would dismiss all of the cases, including Poole's, for want of jurisdiction, but if the merits are to be reached he agrees that the Hatch Act is constitutional.

Justices Black, Douglas, and Rutledge dissent in varying degrees. Black would take jurisdiction in all of the cases and hold the Hatch Act unconstitutional in all. In his opinion, the statute and the Civil Service Commission regulations under it are too broad, ambiguous, and uncertain in consequences. The First Amendment is violated and possibly Article One and the Seventeenth Amendment in so far as they protect the right to vote. "I think the Constitution prohibits legislation which prevents millions of citizens from contributing their arguments, complaints, and suggestions to the political debates which are the essence of our democracy; prevents them from engaging in organizational activity to urge others to vote and take an interest in political affairs; bars them from performing the interested citizen's duty of insuring that his and his fellow citizen's votes are counted."

Justice Rutledge would take jurisdiction only in the Poole case and would hold the act invalid as applied to Poole. Justice Douglas would take jurisdiction as to all 12 appellants, believing that they should not have to wait until they are discharged before seeking clarification of their rights. In Poole's case, he would draw a careful line between industrial and administrative officers of the Government. The Hatch Act may be valid as to the latter, but is not as to the former. "Poole, being an industrial worker, is as remote from contact with the public or from policy making or from the functioning of the administrative process as a charwoman." Therefore, there is no valid reason for the Government to curb his political activities.

In the second Hatch Act case, Oklahoma objected to the enforcement of Section 12a which extends the prohibition against political activity by public officers to those state activities which are financed in whole or in part by Federal grants. France Paris, a member of the Oklahoma State Highway Commission, was also chairman of the Democratic State Committee. During the disputed period his only political activity was to help indirectly in staging a party dinner to raise funds. The United States Civil Service Commission was prepared to order a withholding of certain Federal highway funds from the state because of the violation of the law. In the majority opinion by Justice Reed, it is held that Oklahoma may properly bring an action under the Hatch Act to test its constitutionality, but that the act validly limits the political activity of such a state officer as Paris. "While the United States is not concerned and has no power to regulate local political activities as such of state officials, it does have power to fix the terms upon which its money allotments to the state shall be disbursed." Justices Black and Rutledge dissent without opinion.

In *United States v. Petrillo* (June 23), the first round in the battle between the Federal Government and James Caesar Petrillo, boss of the musicians' union, was brought to a close with the round going to the Government. On April 16, 1946, Congress passed the Lea Act which makes it unlawful to coerce a radio broadcaster to employ persons in excess of the number actually needed to operate the station (persons are forbidden "to compel a broadcaster to employ . . . any person or persons in excess of the number of employees needed by such licensee to perform actual services"). Maximum penalties under the act are a $1,000 fine and a one-year prison term.

In what was obviously intended to be a test case, Petrillo, in an attempt to force a Chicago radio station to employ three additional persons, called out the station's musicians on strike and established a picket line. Thereupon the Government prosecuted Petrillo by an information charging him with a violation of the Lea Act. A motion by Petrillo to dismiss the information was granted by the Federal district court on the ground that the statute was unconstitutional, and the Government took the case directly to the Supreme Court under the Criminal Appeals Act. Three attacks were made upon the law's constitutionality: first, that it interferes with freedom of speech contrary to the First Amendment; second, that it violates the Fifth Amendment because of the vagueness of the crime it defines, and because it denies equal protection of the laws and liberty of contract; third, that it results in involuntary servitude contrary to the Thirteenth Amendment.

Justice Douglas took no part in the case. The remaining eight justices divided five to three in upholding the statute. The majority opinion is by Justice Black, joined by Vinson, Jackson, and Burton. It is held that the issue of the statute's vagueness is properly raised, but the argument is rejected that the act is invalid because the potential offender can not know when he is forcing an employee to engage more workers than he needs. It is also held that the equal protection issue is properly raised, but the majority concludes that the act is not unconstitutional because it limits the offense to the area of radio broadcasting and is not wider in its application. However, the Court does not reach the merits as to the freedom of speech or involuntary servitude issues. It holds that the case has not progressed to the point where the Government is finally and irrevocably basing the prosecution on the use of a picket line, and that accordingly it is too early to decide whether the statute's possible use to prevent peaceful picketing violates the First Amendment. The same reasoning is used to justify the Court's refusal to consider whether the act violates the Thirteenth Amendment by forcing workers to remain at their jobs. The majority ruling in the case cleared the way for the Government to renew the prosecution of Petrillo.

Justice Frankfurter concurs in a separate opinion. The dissenting opinion is by Justice Reed, joined by Murphy and Rutledge. These three justices are of the opinion that the act fails to meet the test of constitutionality as to the issue of vagueness. "How can a man or jury possibly know how many men are 'needed to perform actual services' in broadcasting?"

JOHN L. LEWIS CONTEMPT CASE

The most sensational and controversial case of the year was that involving the review by the Supreme Court of a Federal district court ruling holding John L. Lewis and the United Mine Workers guilty of civil and criminal contempt and fining the former $10,000 and the latter $3,500,000. The case has a very complicated background. In May, 1946, the Government took possession of the coal mines under the War Labor Disputes Act of 1943 because of a labor dispute between the miners and the mine-owners. At that time Lewis and Secretary of the Interior Krug made an agreement which was to run for the period of government operation of the mines. However, in October, 1946, Lewis gave notice of a desire to negotiate a new wage settlement, purportedly under a 1945 agreement which he claimed was still in effect. The Government rejected this claim and refused to negotiate. Thereupon Lewis gave notice that the miners were terminating the Krug-Lewis Agreement as of Nov. 20, 1946, and he circulated copies of this notification among the miners for their "official information."

On Nov. 18, the Government filed a complaint in the District Court of the District of Columbia against Lewis and the United Mine Workers, asking the Court to rule under the Declaratory Judgment Act that the miners had no authority unilaterally to terminate the Krug-Lewis Agreement and requesting a temporary restraining order against such action. The Court issued the order, but under the miner's traditional "no contract, no work" policy "a full-blown strike was in progress" by Nov. 20. Thereupon the Government asked the Court to hold the defendants in contempt for violating the order. The defendants challenged the jurisdiction of the District Court, asserting that the Norris-LaGuardia Act prohibits the granting of temporary restraining orders in labor disputes even at the instance of the United States Government. The Court rejected this assertion and proceeded with the contempt trial, which resulted in a finding of guilt and the fines already mentioned. The case was then carried directly to the Supreme Court for review (*United States v. United Mine Workers,* March 6).

The majority opinion is by Chief Justice Vinson, joined by Reed, Frankfurter, Jackson, and Burton. The Court holds that the language of the Norris-LaGuardia Act divesting Federal courts of jurisdiction to issue injunctions in labor disputes does not cover the situation where the Government is the employer, and also that this state of the law was not altered by the War Labor Disputes Act. It further holds that the miners did become employees of the Government under the seizure program. Even if the Norris-LaGuardia Act does apply to the case the Court holds that a Federal court may issue a temporary restraining order in a labor dispute "for the purpose of preserving existing conditions pending a decision upon its own jurisdiction" and "its own authority to grant injunctive relief."

The Court next turns its attention to the question whether the fines were arbitrary and excessive and finds that the $10,000 fine against Lewis was warranted. But a majority holds that a proper punishment of the union for its criminal contempt would have been a $700,000 fine, and that for the purpose of coercing the union into future compliance with the lower court order the remaining $2,800,000 of the original fine should have been conditioned on the union's failure to purge itself of its contempt within a reasonable period of time. Accordingly, the Supreme Court gives the United Mine Workers five days to show that it has complied with the lower court's restraining order, by a withdrawal of Lewis' notice to Krug terminating the Krug-Lewis Agreement, and by notifying the union members of this withdrawal in "substantially the same manner" as they were notified of the cancellation of the Krug-Lewis Agreement.

Justice Jackson joins in the opinion except as to the Norris-LaGuardia Act which he thinks forbids the Federal courts to issue restraining orders in a case of this type. Justice Frankfurter in similar fashion joins in the opinion "in so far as it sustains the judgment for criminal contempt upon the broad ground of vindicating the process of law," but holds that the Norris-LaGuardia Act forbids labor injunctions even where the Government is the employer.

Justices Black and Douglas in a joint opinion hold that the Norris-LaGuardia Act does not prevent the Government from seeking an injunction in a labor dispute. But under the rule that in contempt proceedings a court should never exercise more than "the least possible power adequate to the end proposed" they hold that the penalty for criminal contempt is unjustified and that only a coercive sanction (civil contempt) should be employed. Thus the entire fine against each defendant should be made conditional on the failure of the defendants to purge themselves.

Justice Murphy in a separate dissenting opinion holds that the Norris-LaGuardia Act does forbid labor injunctions even where the Government is the employer and that furthermore the Federal courts are denied authority to issue temporary restraining orders even to preserve an existing situation while determining their jurisdiction to consider a case on its merits.

Finally, in a long dissenting opinion, Justice Rutledge holds that the Norris-LaGuardia Act forbids the order which the lower court issued in this case, and that the War Labor Disputes Act does not give the Government the right to use the injunctive weapon in seizure cases.

FEDERAL-STATE RELATIONS

In *United States v. California* (June 23), the Supreme Court heard an original suit by the Federal Government against California for a decree that it, rather than the states, has the right of ownership of lands and control of the mineral rights within the three-mile belt of ocean off the coast, and for a decree enjoining California and its lessees from trespassing. For many years California had claimed the rights at issue, had negotiated oil leases, and had received large sums in royalties and rents. In 1946, Congress passed a joint resolution quitclaiming the disputed rights to the states, but this resolution was vetoed by the President and was not repassed over his veto. In the majority opinion, Justice Black, joined by Vinson, Douglas, Murphy, Rutledge, and Burton, upholds the claims asserted by the Federal Government. ". . . national interests and responsibilities, and therefore national rights are paramount in waters lying to the seaward in the three-mile belt. . . . We decide . . . that California is not the owner of the three-mile marginal belt along its coast, and that the Federal Government rather than the state has paramount rights in and power over that belt, an incident to which is full dominion over the resources of the soil under that water area, including oil."

Justice Jackson did not participate in the case. Justices Frankfurter and Reed dissented. The former holds that the majority confuses property interest with national interest, and that, if the Federal Government is to claim a property interest in the disputed area, the political departments, Congress and the President, rather than the judicial department must make such an assertion.

Joseph v. Carter and Weekes Stevedoring Co. (March 10) is one of the latest decisions in the long line of cases in which the Supreme Court has been called upon to determine the restraining effect of the Federal commerce power upon the taxing power of the states. Here, a stevedoring company, which loaded and unloaded freight from interstate and foreign vessels in New York City, was held not liable to a state income tax on the gross proceeds of its business, which tax was not in lieu of *ad valorem* property taxes and was not apportioned to income on intrastate business alone. Stevedoring is held to be "essentially a part of commerce itself." This five-to-four decision is one of the rare instances in 1947 in which the Supreme Court held a challenged government action or policy invalid.

I. AMERICAN POLITICAL HISTORY

FEDERAL ADMINISTRATIVE AGENCIES

By John A. Tillema
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GENERAL

An outstanding administrative reorganization of national defense agencies was effected by the National Security Act of July 26, 1947, Public Law 253. It was the intent of Congress to provide a comprehensive program for the future security of the United States and to provide for the establishment of integrated policies and procedures for the departments, agencies and functions of the Government relating to national security. The act is divided into two sections or Titles: Title I, Co-ordination for National Security; Title II, The National Military Establishment.

NATIONAL SECURITY COUNCIL

By Sec. 101 (a) of the Act of July 26, 1947, there was established a council to be known as the National Security Council. The President of the United States will preside over the meetings of the Council and in his absence he may designate a member of the Council to preside in his place. The function of the Council is to advise the President with respect to the integration of domestic, foreign, and military policies relating to national security so as to enable the military services and other departments and agencies of the Government to cooperate more effectively in matters involving national security. The Council is composed of the President, Secretary of State, Secretary of Defense, Secretaries of the Army, Navy, and Air Forces, Chairman of the National Security Resources Board and such of the following named officers as the President may designate: the Secretaries of the Executive Department and the Chairman of the Research and Development Board. (b) In addition to performing such other functions as the President may direct, for the purpose of more effectively performing the policies of the departments and agencies of the Government relating to national security, it shall, subject to the direction of the President, be the duty of the Council: (1) to assess and appraise the objectives, commitments, and risks of the United States in relation to our actual and potential military power; (2) to consider policies on matters of common interest to departments and agencies of the Government concerning national security. (c) The Council shall have a staff to be headed by a civilian executive secretary appointed by the President. The rest of the personnel is to be selected subject to the civil service laws and regulations.

CENTRAL INTELLIGENCE AGENCY

Sec. 102 (a) of the National Security Act provides that there shall be established under the National Security Council a Central Intelligence Agency with a Director of Central Intelligence. The Director is to be appointed by the President by and with the advice and consent of the Senate. He is to receive a salary of $14,000 per annum. If a commissioned officer of the armed services is appointed Director then: (A) in the performance of his duties as Director, he shall be subject to no control, restriction or prohibition other than would be operative with respect to him if he were a civilian and in no way connected with the Departments of the Army, Navy, or Air, or the armed services; (B) he shall not possess or exercise any control, powers, or functions with respect to the armed services or of any personnel of the same.

The Director of Central Intelligence may, in his discretion, terminate the employment of any officer or employee of the agency whenever he shall deem the termination necessary or advisable in the interest of the United States, but this shall not affect the right of such officer or employee to seek or accept employment in another department or agency of the Government if declared eligible by the Civil Service Commission. The powers of the Director are bestowed for the purpose of coordinating the intelligence activities of the several government departments in the interest of the national security. The National Intelligence Authority was abolished, and the property and records were transferred to the Central Intelligence Agency.

NATIONAL SECURITY RESOURCES BOARD

This Board is to be composed of a Chairman and such heads or representatives of the various departments and agencies as may be designated from time to time by the President. The Chairman is to receive $14,000 per annum. He is empowered, subject to the direction of the President and in accordance with the Civil Service laws and the Classification Act of 1923, to appoint and fix the compensation of the necessary personnel.

It is the function of the Board to advise the President concerning the coordination of military, industrial, and civilian mobilization. In performing its functions, the Board shall utilize to the maximum extent the resources of the departments and agencies of the Government.

THE NATIONAL MILITARY ESTABLISHMENT

Under Title II of the National Security Act of July 26, 1947, the defense departments were coordinated into a single new establishment known as the National Military Establishment. At the head of the new Establishment is placed the Secretary of Defense. The National Military Establishment includes the Department of the Army, Department of the Navy, and Department of the Air Forces.

SECRETARY OF DEFENSE

The Secretary of Defense, the head of the National Military Establishment is appointed from civilian life by the President by and with the advice and consent of the Senate. A person who within ten years shall have been on active duty as a commissioned officer is ineligible for the appointment. The Secretary of Defense is the principal assistant to the President in all matters pertaining to national security. The duties of the Secretary of Defense are: 1. to establish general policies and programs for the National Military Establishment; 2. to exercise general direction, authority and control over such departments and agencies; 3. to take appropriate steps to eliminate unnecessary duplication or overlapping in the fields of procurement, supply, transportation, storage, health, and research; and 4. to supervise and coordinate the preparation of the budget estimates of the departments and agencies comprising the National Military Establishment, formulate and determine the budget estimates for submittal to the Bureau of the Budget and supervise the budget programs of such departments and agencies under the applicable appropriation act, provided, however, that the Secretary of the Army and the Secretaries of the Navy and Air Forces may present recommendations to the President or Director of the Budget after first so informing the Secretary of Defense.

Officers of the armed services may be detailed to duty as assistants and personal aids to the Secretary of Defense, but he shall not establish a military staff. The Secretary of Defense may have not more than three special assistants from civilian life.

WAR COUNCIL

There shall be with the National Military Establishment a War Council composed of the Secretary of Defense as Chairman, who shall have power of decision; Secretary of the Army; Secretary of the Navy; Secretary of the Air Forces; Chief of Staff, United States Army; Chief of Naval Operations and the Chief of Staff, United States Air Force. The War Council shall advise the Secretary of Defense on matters of broad policy relating to the armed forces, and shall consider and report on such other matters as the Secretary of Defense shall direct.

JOINT CHIEFS OF STAFF

There is created within the National Military Establishment the Joint Chiefs of Staff, which consists of the Chief of Staff, United States Army; the Chief of Naval Operations; the Chief of Staff, United States Air Forces; and the Chief of Staff of the Commander in Chief, if there is one.

It is the duty of the Joint Chiefs of Staff: 1. to prepare strategic plans and to provide for the strategic direction of the military forces; 2. to prepare joint logistic plans and to assign to the military services logistic responsibilities in accordance with such plans; 3. to establish unified commands in strategic areas when such unified commands are in the interest of the national security; 4. to formulate policies for the joint training of the military forces; 5. to formulate policies for coordinating the education of members of the military forces; 6. to review major material and personnel requirements of the military forces, in accordance with strategic and logistic plans; and 7. to provide United States representation on the Military Staff Committee of the United Nations in accordance with the provisions of the Charter of the United Nations.

The Joint Chiefs of Staff shall act as the principal military advisers to the President and the Secretary of Defense and shall perform such other duties as the Secretary of Defense may direct or as may be prescribed by law.

JOINT STAFF

The Joint Staff will comprise, not to exceed 100, officers chosen in approximately equal numbers from the three armed services. They will operate under a Director appointed by the Joint Chiefs of Staff. The Director will be an officer junior in grade to all the members of the Joint Chiefs of Staff.

MUNITIONS BOARD

There is a Munitions Board in the National Military Establishment. Its Chairman is selected from civilian life by the President and shall receive a compensation of $14,000 per annum. The three other members are Under-Secretaries or Assistant Secretaries of each of the three military departments. The duties of the Board under the direction of the Secretary of Defense and in support of strategic and logistic plans prepared by the Joint Chiefs of Staff are:

1. To coordinate the appropriate activities within the National Military Establishment with regard to matters including the production, the procurement and distribution plans of the departments and agencies comprising the Establishment.

2. To plan for the military aspects of industrial mobilization.

3. To recommend assignment of responsibility for procurement among the several military services and to plan for standardization of specifications and for the best practicable purchase authority of technical equipment and common use items on the basis of single procurement.

4. To prepare estimates of potential production, procurement, and personnel for use in evaluation of the logistic feasibility of strategic operations.

5. To determine relative priorities of the various segments of the military procurement programs.

6. To supervise such coordinate agencies as are or may be created to consider the subjects falling within the scope of the Board's responsibilities.

7. To make recommendations to regroup, combine or dissolve existing inter-service agencies operating in the field of procurement, production and distribution in such manner as to promote efficiency and economy.

8. To maintain liaison with other de-

partments and agencies for the proper correlation of military requirements with the civilian economy, particularly with regard to the procurement or disposition of strategic and critical material and the maintenance of adequate reserves of such material, and to make recommendations thereon to the Secretary of Defense.

9. To perform such other duties as the Secretary of Defense may direct.

The Secretary of Defense provides the Board with such personnel and facilities as the Secretary may deem to be required by the Board for the performance of its functions.

RESEARCH AND DEVELOPMENT BOARD

This Board within the National Military Establishment is composed of a Chairman, as head, and two representatives of each of the departments of the Army, Navy, and Air Forces to be designated by the Secretaries of their respective departments. The purpose of this Board is to advise the Secretary of Defense as to the status of scientific research relative to the national security. It is the duty of the Board, under the direction of the Secretary of Defense—

1. To prepare a complete and integrated program of research and development for military purposes.

2. To advise with regard to trends in scientific research relating to national security and the measures necessary to assure continued and increasing progress.

3. To recommend measures of coordination of research and development among the military departments and the allocation among them of responsibilities for specific programs of joint interest.

4. To formulate policy for the National Military Establishment in connection with research and development matters involving agencies outside of the National Military Establishment.

5. To consider the interaction of research development of strategy and to advise the Joint Chiefs of Staff in connection therewith.

ADVISORY COMMITTEES AND PERSONNEL

The Secretary of Defense, the Chairman of the National Security Resources Board, and the Director of National Intelligence are authorized to appoint such advisory committees and to employ, consistent with the other provisions of the act, such part-time advisory personnel as they may deem necessary in carrying out their respective functions and the functions of the agencies under their control.

FUNCTIONS OF THE ARMED FORCES

Immediately after the National Security Act was enacted by Congress, by executive order of July 29, 1947, the President, as Commander in Chief of the armed forces of the United States, listed the primary functions and responsibilities of each of three armed services: Army, Navy and Air. He supplemented the enumerated list of combined functions and individual functions of each service with the statement: "To assist the other services in the accomplishment of their missions, including the provision of common services and supplies as determined by proper authority."

NATIONAL SECURITY RESOURCES BOARD

By order of Nov. 13, 1947, the President designated as members of the Board, the Secretary of the Treasury, Secretary of Defense, Secretary of the Interior, Secretary of Agriculture, Secretary of Commerce, and Secretary of Labor to be members of the Board. The Chairman of the Board is to be responsible for the direction of the work and staff of the Board, including among other things, the preparation and accumulation of factual data necessary to the formulation of plans, policies, and programs, and for the submission of such reports to the Chairman of the Board.

Pursuant to the request of the Board, all Federal departments and agencies shall furnish the Board such information, reports, statistics, and other data or documents in their possession or under their control or obtainable by them, all in the performance of their normal and lawful functions, and make for the Board such studies, investigations, and reports as are in the judgment of the Board necessary or desirable to fulfill the duties and accomplish the functions and purposes as prescribed by the National Security Act of 1947.

INTERIM ADMINISTRATION FOR THE TRUST TERRITORY OF THE PACIFIC ISLANDS

By Executive order of July 22, 1947, the military government in the former Japanese mandated islands was terminated, and the authority and responsibility for the civil administration of the trust territory, on an interim basis, was delegated to the Secretary of the Navy. The Secretary of the Navy shall, subject to such policies as the President may from time to time prescribe, and when appropriate, in collaboration with other departments or agencies of the Federal Government, carry out the obligations which the United States, as administering authority of the trust territory, has assumed under the terms of the agreements and the Charter of the United Nations; provided, however, that the authority granted to the United States under Article 13 of the agreement to close any areas for security reasons and to determine the extent to which Articles 87 and 88 of the Charter of the United Nations shall be applicable to such closed areas, shall be exercised jointly by the Secretary of the Navy and the Secretary of State. All relations between departments or agencies of the Federal Government and appropriate organs of the United Nations with respect to the trust territory shall be conducted through the Secretary of State. This order, subject to subsequent modification, shall remain effective until a designation is made of the civilian department or agency which is to have the permanent responsibility for the government of the trust territory.

FOREIGN PATENTS

By Executive Order of June 17, 1947, the President directed:

1. All government departments and agencies shall, whenever practicable, acquire the right to file foreign patent applications on inventions resulting from research conducted or financed by the Government.

2. All government departments and agencies which have, or may hereafter acquire title to inventions or the right to file patent applications abroad thereon, shall fully and continuously inform the Department of Commerce concerning such inventions, except those within the jurisdiction of the Atomic Energy Commission, unless the Commission specifically authorizes the inclusion, or other inventions officially classified as secret or confidential for reasons of national security; and shall make recommendations to the Department of Commerce as to which of such inventions should receive patent protection by the United States abroad and the foreign jurisdictions in which such patent protection should be sought. The recommendations of such departments and agencies shall indicate the immediate future industrial, commercial, or other value of the invention concerned, including its value to the public health.

3. The Department of Commerce shall determine whether and in what jurisdictions, the United States should seek patents for such inventions and, to the extent of the appropriations available therefor, shall secure patent protection for such inventions, taking all action consistent with existing law, necessary to acquire and maintain patent rights abroad. Such determination of the Department of Commerce shall be made after full consultation with United States industry and commerce, with the Department of State and with other government agencies familiar with the technical, scientific, industrial, commercial, or other economic or social factors affecting the invention involved, and after consideration of the availability of valid patent protection in the countries determined to be immediate or

potential markets for, or producers of the products, processes or services covered by or relating to the invention.

4. The Department of Commerce shall administer foreign patents acquired by the United States under the terms of the Order and shall issue licenses thereunder in accordance with law and such rules and regulations as the Secretary of Commerce shall prescribe. Nationals of the United States shall be granted licenses on a non-exclusive royalty free basis except in such cases as the Secretary shall determine and proclaim it to be inconsistent with the public interest to issue such licenses on a non-exclusive royalty free basis.

5. The Department of State, in consultation with the Department of Commerce, shall negotiate arrangements among governments under which each government and its nationals shall have access to the foreign patents of the other participating governments. Patents relating to matters of public health may be licensed by the Secretary of Commerce, with the approval of the Secretary of State, to any country or its nationals upon such terms and conditions as are in accordance with law and as the Secretary of Commerce determines to be appropriate, regardless of whether the country is a party to the arrangements.

TRANSFERS TO ATOMIC ENERGY COMMISSION

The first Executive order to go into effect in the year, 1947, was the one which ordered the transfer to the Atomic Energy Commission of all the interests of the United States or any government agency in: 1. All fissionable material, all atomic weapons and parts thereof; all facilities, equipment for the processing, production or utilization of fissional materials or atomic energy; all processes and technical information of any kind and the source thereof, including data, drawings, specifications, patents, patent applications etc., relating to the processing, production or utilizationable material or atomic energy; and all contracts, leases, agreements, patents, applications for patents, inventions and discoveries, patented or unpatented, and all other rights concerning such items. 2. All facilities, equipment and materials devoted primarily to atomic energy research and development.

There was also transferred to the Atomic Energy Commission all property, real and personal, tangible or intangible, including records owned by the Manhattan Engineer District, War Department, in addition to the property described in paragraph one. Specific of such property could be excluded from transfer to the Commission in the following manner: (a) The Secretary of War should notify the Commission in writing as to the specific items of property or records he wished to except; and (b) if, after full examination of the facts by the Commission, it concurred in the exception, those specific items of property or records should be excepted from transfer to the Commission; or (c) if after full examination of the facts the Commission did not concur in the exception, the matter should be referred to the President for decision. The Atomic Energy Commission shall exercise full jurisdiction over all interests and property transferred to it in accordance with the provisions of the Atomic Energy Act of 1946.

There were also transferred to the Commission all civilian officers and employees of the Manhattan Engineer District, except that the Commission and the Secretary of War might by mutual agreement exclude any of such personnel from transfer to the Commission. The military and naval personnel heretofore assigned or detailed to the Manhattan Engineer District, War Department was continued to be available to the Commission, for military and naval duty without prejudice to the military or naval status of such personnel for such time as might be mutually agreed by the Commission and the

Secretary of War or the Secretary of the Navy.

FEDERAL HOUSING EXPEDITER

This office was formerly merged in that of the Federal Housing Administrator, but since it was found necessary that his powers, duties and functions be segregated, an Expediter was appointed as an independent officer of the Government. Under the authority of the Veteran's Emergency Housing Act of 1946, the President ordered as follows: 1. that all the powers, functions, and duties of the Housing Expediter, which were merged with the powers, functions, and duties of the National Housing Administrator, be segregated and be exercised and performed by the Housing Expediter as an independent officer; 2. that all the personnel (as determined by the joint certification of the Housing Expediter and the National Housing Administrator) be transferred to the Office of the Housing Expediter. The joint certifications required were to be made within 30 days from the date of the order; 3. that all assets, contracts and property, including office equipment and records pertaining to the functions and duties of the Expediter, be transferred to the Office of Housing Expediter; 4. that the Director of the Bureau of the Budget supervise the transfer of the proper funds to be allocated to the new office.

BOARD OF WAR COMMUNICATIONS

By Executive order of Feb. 24, 1947, the Board of War Communications was abolished and all the property and records transferred to the Federal Communications Commission.

SURPLUS PROPERTY OFFICE, DEPARTMENT OF THE INTERIOR

By Executive order of Feb. 21, 1947, the Surplus Property Office of the Department of the Interior was transferred to the War Assets Administration. The War Assets Administrator was permitted at his discretion to terminate the Office transferred as a separate organizational entity with the War Assets Administration.

FEDERAL PERSONNEL ADMINISTRATION

By Order 9830 of Feb. 24, 1947, President Truman amended the Civil Service Rules and provided for Federal Personnel Administration. The Order revoked 50 enumerated orders issued from Nov. 29, 1904 to June 4, 1946. The Order declares that personnel management is a primary responsibility of all who plan, direct or supervise the work of Federal employees. Personnel management methods should be consistent for the Government as a single employer and yet should be sufficiently flexible to meet the diversified conditions in the Federal service.

CIVIL SERVICE COMMISSION RESPONSIBILITY

The Commission is responsible to the President for the proper application of the Civil Service Act and Rules, the Veteran's Preference Act, and all other applicable statutes and executive orders imposing responsibility on the Commission. The Commission is directed to exercise and provide leadership in personnel matters throughout the Federal service, and, in discharge of this responsibility shall, whenever practicable, consult Federal agencies.

The Commission shall develop and promulgate standards applicable to the competitive service and designed to protect and promote its efficiency, for the reinstatement or reemployment of former Federal employees and for the promotion, demotion, reassignment and transfer of present employees. The Commission shall also define the restoration rights of persons who left the Federal service to enter the armed forces of the United States in such manner as to give full effect to Section 8 of the Selective Service and Training Act.

The Commission is required to prescribe procedures to be followed by agencies in connection with removals, demotions, and suspensions in the competitive service which will insure equitable and uniform treatment to employees against whom adverse action is proposed.

The Commission shall when consistent with law and with economical and efficient administration of the Government, delegate to the agencies its authority to act in personnel matters in accordance with the standards issued by the Commission.

The Commission shall maintain an adequate system of inspection to determine that equitable and sound application of statutes, executive orders, regulations, and standards relating to personnel matters are being carried out by the agencies. Whenever the inspection indicates failure on the part of agency to adhere to established policies, regulations, and standards, the Commission shall take such action as may be appropriate to bring about adherence thereto. In this connection, the Commission may suspend or revoke any delegation of its authority.

The Commission shall in the exercise of its personnel functions give all practicable assistance to international organizations in which the United States participates, to the Puerto Rico Civil Service Board, and to such Federal, Territorial, State, or local agencies as shall request its cooperation and offer like cooperation, including, when appropriate, the sharing of any necessary expenses.

AGENCY RESPONSIBILITY FOR PERSONNEL MANAGEMENT

The head of each agency, in accordance with the applicable statutes, executive orders, and rules shall be responsible for personnel management within the agency. To assist and advise him in carrying out this responsibility, he shall maintain or establish such office or division of personnel as may be required. He shall designate a director of personnel or other similarly responsible official to be in charge of such office or division. Such director or other official shall represent the head of the agency in personnel matters, subject to his instruction.

The head of each agency shall provide for the cooperation of his agency with the Civil Service Commission in the conduct of personnel matters.

Authority for the conduct of personnel matters within each agency shall be delegated to the extent compatible with the provisions of law and with economical and efficient administration to those officials responsible for planning, directing, and supervising the work of others. The exercise of such delegated authority shall be subject to policies, rules, regulations, and standards established by the head of the agency, and shall be subject to appropriate review and inspection.

The head of each agency shall remove, demote, or reassign to another position any employee in the competitive service whose conduct or capacity is such that his removal, demotion, or reassignment shall promote the efficiency of the service.

FEDERAL PERSONNEL COUNCIL

The Council of Personnel Administration shall hereafter be known as the Federal Personnel Council and shall be continued within the Civil Service Commission. Its functions are to be advisory to the Commission. It is to be composed of representatives of the departments and agencies.

LOYALTY PROGRAM

An Executive Order of March 25, 1947 prescribed the procedures for the administration of an employees' loyalty program in the executive branch of the Government. The Order directed that there should be a loyalty investigation of every person entering the civilian employment of any department or agency. The program is to be conducted by the Civil Service Commission except as covered by a special agreement between the Commission and any department or agency of the Federal Government. The investigation of persons other than those entering the competitive service is to be conducted by the employing department or agency. Departments or agencies without investigative organizations were directed to use the investigative facilities of the Civil Service Commission.

The foregoing, Part I, deals with those persons who are seeking admission to Federal Administrative service. Part II of the Order applies to those persons who are already in the employment of the United States. Part II provides that the head of each department and agency in the executive branch of the Government shall be personally responsible for an effective program to assure that disloyal civilian officers or employees are not retained in the employment of his department or agency. He is held responsible for prescribing and supervising the loyalty determination procedures of his department or agency in accordance with the provisions of the Order which shall be considered as providing minimum requirements. The head of a department or agency without an investigative agency is directed to use the investigative facilities of the Civil Service Commission.

The head of each department or agency is required to appoint one or more loyalty boards, each composed of not less than three members. Officers or employees charged with disloyalty are given a right to an administrative hearing before a loyalty board. They are entitled to a written notice of charges and may be accompanied by council or representation of their choosing.

The right of hearing, notice thereof, and an appeal therefrom shall be accorded to every officer or employee prior to removal on grounds of disloyalty, irrespective of tenure or method or nature of appointment, but the head of the employing department or agency may suspend any officer or employee at any time pending a determination with respect to loyalty.

LOYALTY REVIEW BOARD

There must be a Loyalty Review Board in the Civil Service Commission. This Board must have not less than three impartial members who shall be officers and employees of the Civil Service Commission. Part IV of the Order deals with the security measures to be observed in investigations, and Part V, with the standards to be applied.

SOLID FUELS ADMINISTRATION FOR WAR

By Executive Order of May 6, 1947, the authority of the Solid Fuels Administrator was terminated. The Secretary of the Interior, acting through the Solid Fuels Administration for War until its abolition, and thereafter, though such agency or agencies of the Department of the Interior as the Secretary of the Interior might designate, is authorized to liquidate its affairs as expeditiously as practicable.

HOUSING AND HOME FINANCE AGENCY

The plan for this new agency was submitted by President Truman to the Senate and House of Representatives in Congress assembled on May 27, 1947, under the caption: Reorganization Plan 3 of 1947. This reorganization plan recommended to Congress that The Home Owners Loan Corporation, Federal Savings and Loan Insurance Corporation, Federal Housing Administration, United States Housing Authority, Defense Homes Corporation, and United States Housing Corporation, together with their respective functions, and the functions of the Federal Home Loan Bank Board be merged in a new agency to be known as: The Housing and Home Finance Agency.

RECIPROCAL TRADE AGREEMENTS PROGRAM

By Executive Order 9832, Feb. 25, 1947, President Truman outlined the procedures to be followed for the administration of reciprocal trade agreements. The Order is divided into three Parts. Part I provides that there shall be included in every trade agreement hereafter entered into under the authority of the Act of June 12, 1934, as amended, a clause providing that, if, as a result of unforeseen developments, such article is being imported in such increased quantities and under such conditions as to cause or threaten serious injury to domestic producers of like or similar articles, the United States shall be free to withdraw the concession in whole or in part or to modify it, to the extent and for such time as may be necessary to prevent such injury.

The United States Tariff Commission, upon the request of the President, upon its own motion or upon the application of any interested party when in the judgment of the Tariff Commission there is good and sufficient reason therefor, shall make an investigation and report to the President. In the course of any investigation the Tariff Commission shall hold public hearings, giving reasonable public notice thereof, and shall afford reasonable opportunity for parties interested to be present, to produce evidence, and to be heard at such hearings.

The Tariff Commission is required to keep informed concerning provisions relating to duties and other import restrictions in trade agreements, and at least once a year shall submit to the President and to the Congress a factual report on the operation of the trade agreements program.

Part II of the Order provides for an Interdepartmental Committee consisting of representatives of the Tariff Commission, and the Departments of State, Treasury, War, Navy, Agriculture, Commerce, and Labor. The Chairman of the Committee is the representative of the Department of State. The duty of the Interdepartmental Committee is to make recommendations to the President concerning items to be included in trade agreements.

Part III of the Trade Agreements Order directs that there shall be included in every trade agreement, hereafter entered into by the United States, a most favored nation provision securing for the exports of the United States the benefits of all tariff concessions and other tariff advantages hereafter accorded by the other party or parties to the agreement to any third state. This provision shall be subject to a minimum of necessary exceptions and shall be designed to obtain the greatest possible benefits for exports from the United States.

The Interdepartmental Committee shall take note of any discriminations by other countries against the trade of the United States which can not be removed by normal diplomatic representations, and, if the public interest will be served thereby, shall recommend to the President the withdrawal from such state of the benefits of concessions.

ELECTIONS OF 1947

By David B. Truman
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GENERAL

Elections in the off-year 1947 involved only a few statewide contests, most balloting involving municipal and township officials. Of the seven states which elected state officials, Kentucky and Mississippi produced results of more than local interest. Kentucky's gubernatorial contest and the race for United States Senator in Mississippi attracted most attention. In the other five states—Michigan, New Jersey, Pennsylvania, Virginia, and Wisconsin—only state legislators, judges, and minor administrative officials appeared on the ballots. Various county officers were voted for in ten states. Of 92 cities of over 100,000 population, 73 held elections for one or more city offices. Election results and related developments in a few such urban centers were notable. Renewed controversy over the role of organized labor in elections, especially at the national level, was stimulated by Federal legislation on the subject.

KENTUCKY

Interest in the Kentucky election on Nov. 4 was focused on the governorship, where a Democrat, Earle C. Clements, Representative in Congress for the Second District, was chosen to succeed Simeon S. Willis, first Republican governor of the state since 1931. Clements defeated Attorney-General Eldon S. Dummit by a margin of 125,000 votes, a normally large Democratic margin. The controversial Taft-Hartley Labor Act, which Clements had opposed in Congress, figured prominently in the campaign. Conflicting and inconclusive claims were made by both sides on the validity of the election as a test of the popularity of this act.

MISSISSIPPI

A successor to the late Theodore G. Bilbo was elected to the Senate from Mississippi on Nov. 4 in a race which involved five Democratic contestants. Circuit Judge John C. Stennis led the field with more than 47,000 votes. The unsuccessful Democratic candidates included W. M. Colmer, Representative from the Sixth Congressional District; Paul B. Johnson, Jr.; Forrest B. Jackson, close associate of the late Senator; and John E. Rankin, veteran Representative from the First Congressional District. Rankin trailed the other Democratic aspirants. The Republican, L. R. Collins, received 508 votes.

CHICAGO

Among local contests, the Chicago mayoralty election of April 1 held most interest for its bearing on national politics. After losing most of the county offices to the Republicans in the 1946 elections, the Democrats elected Martin H. Kennelly to succeed Edward J. Kelly as the city's chief executive. The successful candidate defeated Russell W. Root, Chairman of the Republican County Committee, by a majority of 278,000. Although strictly local issues were of considerable importance in the campaign, Democrats took heart from the fact that, with the largest voter turnout in any mayoralty election in the city's history, their candidate built up a larger plurality than those which had been received by Mayor Kelly in the two previous elections for the top city position, in 1939 and 1943.

NEW YORK

Two developments in New York which may have significance for national elections occurred during the year. The state legislature passed the so-called Wilson-Pakula law, which prohibits a person from entering a primary election of a party of which he is not a regularly enrolled member, except with the permission of the appropriate party committee. It was aimed at preventing members of such minority groups as the American Labor Party from winning major-party endorsement for their candidates over the protest of major-party organizations. The constitutionality of the act was upheld by the Court of Appeals in July in three test cases, of which two were initiated by American Labor Party members and the third by a Democrat.

A second development which weakened minor party organizations in the state was the adoption by voters of New York City on Nov. 4 of a referendum proposal to repeal the provision for the election of members of the City Council by proportional representation. Thus, after a trial of ten years' duration, this election method was dropped by the only city of more than 500,000 in which it had been adopted. The proportional representation provision had been in force since the approval of the new city charter in 1936. Members of the next council, to be elected in 1949 will be chosen from 25 single-member districts identical with the city's state senate districts. The majority for the repeal proposal was 350,000 out of 1,523,000 votes cast.

CORRUPT PRACTICES AMENDMENT IN TAFT-HARTLEY ACT

The Labor Management Relations Act of 1947, popularly known as the Taft-Hartley Act, contains a provision (section 304) making it unlawful for any labor organization to make a contribution or expenditure in connection with any election in which presidential or vice-presidential electors or a Senator or Representative are to be voted for, or in connection with any primary election or political convention or caucus which selects candidates for those offices. This provision, which amends the Federal Corrupt Practices Act, has been bitterly criticized by leaders of organized labor. It was openly challenged in several Congressional by-elections, the first of which occurred in Maryland's third district on July 15. In that district, E. A. Garmatz was elected to fill out the term of Congressman Thomas D'Alesandro, Jr., resigned. Prior to the election President Philip Murray of the CIO published an endorsement of the successful candidate in the *CIO News,* with the avowed purpose of inviting a test of the constitutionality of this portion of the act. No enforcement action was taken by the Department of Justice during the year, but there were repeated reports of the likelihood of such action on the basis of this or other alleged violations of the Act. Announced plans by all of the major labor organizations to take an openly active part in the 1948 elections also indicate that a political, if not judicial, test of the provision will be forthcoming in the near future.

PERIODICAL PUBLICATIONS

American Mercury
570 Lexington Ave., New York City.
American Political Science Review
Harris Hall, Northwestern University, Evanston, Ill.
American Spectator
683 Broadway, New York City.
Commonweal, The
386 Fourth Ave., New York City.
Congressional Digest
2131 LeRoy Place N.W., Washington, D. C.
Current History
135 S. Second St., Philadelphia.
Journal of Political Economy
5750 Ellis Ave., Chicago.
Nation, The
20 Vesey St., New York City.
New Republic, The
40 East 49th Street, New York City.
Newsweek
152 West 42nd Street, New York City.
Political Science Quarterly
Columbia University, New York City.
Time Weekly Newsmagazine (The)
9 Rockefeller Plaza, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Antiquarian Society, Salisbury St. and Park Ave., Worcester, Mass.
American Baptist Historical Society, Upland Avenue, Chester, Pa.
American Catholic Historical Association, Catholic University, Brookland Station, Washington, D. C.
American Historical Assn., Library of Congress Annex, Study Room 274, Washington, D. C.
American Irish Historical Society, 991 Fifth Ave., New York City.
American Jewish Historical Society, Broadway and 122nd Street, New York City.

American Numismatic Society, 156th Street and Broadway, New York City.

American Scenic and Historic Preservation Society, 287 Convent Avenue, New York City.

American Society of Church History, 5757 University Ave., Chicago.

Canadian Historical Assn., Ottawa, Canada.

Freethinkers of America Inc., 370 West 35th Street, New York City.

Hispanic Society of America, Broadway between 155th and 156th St., New York City.

Holland Society of New York, 90 West Street, New York City.

Huguenot Society of America, 122 East 58th Street, New York City.

Methodist Historical Library, 150 Fifth Ave., New York City.

Mississippi Valley Historical Assn.. Cedar Rapids, Iowa.

New England Historic Genealogical Society, 9 Ashburton Place, Boston, Mass.

Presbyterian Historical Society, 520 Witherspoon Building, Philadelphia.

Proportional Representation League, 1417 Locust St., Philadelphia, Pa.

Society for the Preservation of New England Antiquities, 141 Cambridge St., Boston, Mass.

Steuben Society of America, 369 Lexington Ave., New York City.

Thomas Paine National Historical Assn., North Ave., New Rochelle, N. Y.

United States Catholic Historical Society, 346 Convent Ave., New York City.

Woodrow Wilson Foundation, The, 45 E. 65th Street, New York City.

POLITICAL

Academy of Political Science, Fayerweather Hall, Columbia University, New York City.

American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.

American Political Science Assn., 105 Harris Hall, Northwestern University, Evanston, Ill.

League for Industrial Democracy, 112 E. 19th Street, New York City.

Women's National Democratic Club Inc., 50 West 45th St., New York City.

Women's National Republican Club, 3 West 51st Street. New York City.

DIVISION II

INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

THE UNITED NATIONS

By Winifred N. Hadsel
Research Associate, Foreign Policy Association

GENERAL

During 1947 the differences between Russia and the Western Powers dominated most of the sessions of the various organs of the United Nations and put the world organization to a series of critical but inconclusive tests. On the one hand, the very fact that the United Nations survived the struggle between East and West indicated that both sides felt that the organization could continue to serve a useful purpose. At the same time, however, it seemed clear that a further growth of international tensions would make it extremely difficult, if not impossible, for the UN to function effectively in the future.

THE GREEK ISSUE

The Security Council, whose 1947 membership consisted of representatives of Australia, Brazil, Poland, Belgium, Colombia, and Syria, in addition to its five permanent members (United States, U.S.S.R., United Kingdom, China, and France), was particularly affected by the clash between Russian and American interests. One of the principal issues complicated by this clash was the troubled situation in Greece (see "United States and Europe"). On Dec. 3, 1946, the Greek government, charging that the pro-Soviet régimes of Albania, Bulgaria, and Yugoslavia were aiding the Communist-led Greek guerrillas against the Greek army, asked the Security Council to take steps which would halt this interference in the internal affairs of Greece. Following the presentation of this request, the United States proposed that an on-the-spot commission composed of representatives of the 11 members of the Security Council conduct a survey to ascertain the facts involved in the Greek situation. This suggestion was unanimously adopted Dec. 19, 1946, and the first investigation body to be established by the UN was thus created.

The UN Balkan Commission held its first meeting in Athens Jan. 30, 1947, and completed its investigation with a meeting in Belgrade April 2. In the interim, it held a total of 73 sessions in the Balkans, 60 of which took place in Greece, six in Bulgaria, and seven in Yugoslavia. The Commission then proceeded to Geneva April 7 to draft its report, which was adopted May 23 and transmitted to the Security Council for consideration. In the meantime, the Security Council established a special subsidiary group which remained in Salonika in order to report on border violations which might be brought to its attention during the period after the Commission left Greece and before the Security Council recommended action on the Greek case.

The assignment of the UN Balkan Commission was rendered particularly difficult by the sharp differences which existed between the representatives of Russia and Poland, on the one hand, and the nine other members of the Commission. At the outset a heated controversy developed between these two groups in connection with the question of the proper scope of the Commission investigation. The Russian representative maintained that the Commission should confine itself to a study of the Greek internal situation, which, he asserted, was the sole source of the difficulties existing between Greece and its northern neighbors. The United States delegation (headed by Mark F. Ethridge, publisher of the *Louisville-Courier*) insisted, on the contrary, that Greece's internal problems were by no means the only cause of the disturbed conditions along the Greek frontier. The great majority of clashes between guerrillas and Greek authorities, he pointed out, had taken place in the northern provinces of Greece. After a period of extended debate within the Commission the American delegation won support for its view on this point of all the members of the Commission except Russia and Poland, and a broad inquiry was conducted.

The differences within the Balkan Commission were further revealed in its conclusions and recommendations. In one set of conclusions, strongly supported by the United States and seven other members of the Commission (France abstained and Russia and Poland filed a minority report), the charges which Greece had made against its northern neighbors were upheld. According to the findings set forth in this report, Yugoslavia had armed and trained refugees from Greece within its borders and subsequently dispatched them to Greece for action there. Albania, they declared, had likewise received and trained a number of Greek Leftist refugees and supplied them with arms and ammunition. Bulgaria's role was defined as primarily that of a corridor which Greek guerrillas used in moving between Yugoslavia and Greece, rather than as a source of military training, arms, and other equipment.

The majority of the Commission, having concluded that Yugoslavia, Albania, and Bulgaria had interfered in Greek internal affairs, recommended that instances of "future support of armed bands formed on the territory of one state and crossing into the territory of another" should automatically be considered "a threat to peace." According to the terms of the Charter, this meant that such offenses might be dealt with by means of a series of "last resort" measures, including diplomatic pressure, economic sanctions, or even the use of international armed force. Realizing the desirability, however, of using less drastic measures, also recognizing the probability that Russia would veto proposals for strong action against its satellites, the Commission proposed a series of other measures for easing the tension between Greece and its neighbors.

Among these proposals by far the most important was the suggestion that the UN should maintain a watch on the troubled Greek border area by establishing a semi-permanent Balkan frontier commission. This body, it proposed, should remain in existence for at least two years and be empowered not only to investigate any border violations that might occur, but to use its good offices in settling border controversies arising between Greece and its neighbors. However, Russia and Poland rejected these recommendations and maintained that the Greek charges against Yugoslavia, Albania, and Bulgaria were entirely unfounded.

The Security Council began its debate on the Balkan Commission Report June 27. The Council soon found, however, that Russia's objections made it impossible to take action along the lines proposed by the investigatory body. Under these conditions the United States concluded that the Security Council was unable to cope with the Balkan issue. In a search for some other way whereby the UN could deal with the Greek situation, the United States placed the problem on the agenda of the General Assembly (see "General Assembly").

INDONESIA

The Security Council enjoyed its greatest success of the year in connection with the undeclared war between The Netherlands and the Republic of Indonesia. Following the outbreak of hostilities between the Dutch and Indonesians on July 21, Australia and India brought this situation to the attention of the Security Council (July 30). In one of its swiftest actions on record, the Council decided, August 1, to call on the parties concerned to cease hostilities at once, to settle their dispute by arbitration or other peaceful measures, and to keep the Council informed concerning the progress of their settlement. Since this action, which was taken following an 8-0 vote (France, Belgium, and Britain abstaining), constituted a clear-cut demand that a war already in progress be halted, it was widely acclaimed as an indication that the UN was capable of acting vigorously and swiftly. Viewed, however, as a means of settling the Dutch-Indonesian conflict, the Security Council's action soon proved highly inadequate. Not only did the Council fail to provide UN supervision of its order to cease hostilities, but it offered no assistance to the disputants in reaching an agreement.

Although the Dutch and Indonesian governments issued cease-fire orders for midnight, August 4-5, both parties subsequently complained that the truce was being violated. In an effort, therefore, to secure compliance with its earlier request the Security Council decided, August 26, not only to call upon the two governments to maintain their truce but to ask the representatives of Council members in Batavia to report on the situation in the area. In addition, the Council offered to appoint a committee which would tender its good offices for peaceful settlement of the dispute. This Committee of Good Offices, as subsequently constituted, consisted of Australia, selected by Indonesia; Belgium, named by The Netherlands; and the United States, chosen by Australia and Belgium.

When the Consular Commission reported (Sept. 22) that the cease-fire orders were still not fully effective, the Security Council urged the Dutch and Indonesians to consult with each other, either directly or through the Committee of Good Offices. As a result, the two governments concerned named special representatives who began, Nov. 15, to meet with the committee. These meetings culminated in an agreement designed to ensure observance of the previously announced truce. In this connection both parties agreed to refrain from broadcasts or any other form of propaganda aimed at provoking or disturbing troops and civilians. They also promised to cease the publication of daily operational communiques or any other information concerning military operations unless by prior mutual agreement in writing. They further pledged themselves to give the advisers of the Committee of Good Offices full opportunity to observe and inform all troops and civilians of the existing situation. In another effort to relax existing tensions, they accepted the principle that prisoners should be released without regard to the number of prisoners held by either party.

Having succeeded in creating a more favorable atmosphere for the maintenance of the truce between the Dutch and Indonesians, the Committee of Good Offices brought the two disputants together, Dec. 8, for formal discussions. At the close of the year it appeared that these negotiations, which were held on board the *U.S.S. Renville,* a Navy transport anchored in Batavia harbor, would lead to the successful conclusion of a military agreement. Once achieved, such an agreement could pave the way for a political settlement of the dispute between The Netherlands and the Republic of Indonesia as to the place of the latter in the federated United

States of Indonesia which the Dutch proposed to establish. Under the terms of the truce it is likely that a plebiscite will be held throughout the Netherlands East Indies to determine whether the inhabitants of various disputed areas wish to become part of the Indonesian Republic or prefer to be represented by other republics. It also seems probable that the Security Council will send observers to supervise such a plebiscite and to report on compliance with other terms of the truce.

CORFU CHANNEL INCIDENTS

A dispute between Britain and Albania, which threatened to lead to serious international consequences, constituted another problem dealt with by the Security Council. The source of this dispute was an incident which occurred in the Corfu Channel Oct. 22, 1946, when two British warships were damaged by mines, with resulting loss of life and injury to their crews. Britain maintained that the Albanian government was responsible for the incident and requested an apology and compensation. Failing to receive satisfaction, Britain brought the matter to the attention of the Security Council Jan. 10, 1947. Following an extended debate Britain submitted a draft resolution, which, as amended by the United States and France, would have placed the Security Council on record as finding that the laying of mines in peacetime without notification was an offense against humanity, and that the minefield in question could not have been laid without the knowledge of the Albanian authorities. This finding, the resolution continued, should form the basis for a settlement of the dispute by the Albanian and British governments, and in the event of failure to settle, either party might apply to the Council for further consideration of the matter.

Since, however, Russia used its veto power to prevent adoption of the British resolution, the Council reached a deadlock. Thereupon Britain submitted a second draft resolution, April 3, which was subsequently adopted by a vote of eight in favor and two abstentions (Poland and Russia). This resolution provided that Britain and Albania should immediately refer their dispute to the International Court of Justice. The Court subsequently accepted the case, the first since the Court's establishment. Written proceedings were submitted to the Court during 1947, and oral proceedings were scheduled to begin early in 1948.

EGYPT

A dispute between Egypt and Britain came before the Security Council, July 11, when the Egyptian Premier protested against the presence of British troops on Egyptian soil and the British administration of the southern portion of the Nile valley known as the Sudan. The treaty of 1936, permitting Britain to maintain forces in Egypt and the Sudan, he declared, had been forced upon the government in Cairo against its will and under extraordinary wartime circumstances which were no longer in existence. Moreover, he contended, the presence of foreign troops within the territory of a member of the UN, in time of peace and without its free consent, was an infringement of the fundamental principle of sovereign equality on which the UN Charter was founded.

In reply to the Egyptian argument, Britain declared that the treaty, which had nine more years to run, was entirely valid and could not be regarded as having been signed merely as a temporary expedient. Such an interpretation, the British delegate asserted, might cause doubts upon Egypt's willingness to carry out other international obligations in good faith.

During the Security Council's discussions of the Egyptian problem, three recommendations were made to the effect that Britain and Egypt should resume direct negotiations with a view to settling their differences. Since, however, none of these proposals received sufficient support for adoption, and no further suggestions on the subject were made when the third vote was taken, on September 10, the Council was unable to proceed further. At the close of 1947 the Egyptian case thus remained an unsettled item on the agenda of the Security Council.

FREE TERRITORY OF TRIESTE

Following a discussion of the articles and annexes of the Italian peace treaty providing that the Security Council should ensure the independence and integrity of the Free Territory of Trieste, the Council formally accepted its responsibilities in this connection. Among the responsibilities thus assumed was that of appointing the Governor of the Free Territory of Trieste, following consultation with the governments of Yugoslavia and Italy. To this end, the five permanent members of the Security Council held a number of informal conversations but were unable to reach agreement. After a delay of several months, Britain requested the Secretary-General, June 13, to fix an early date for the discussion by the entire Security Council of the question of the appointment of a Governor. The Council discussed the matter on several occasions, but was unable to agree on a candidate. In an effort to break this deadlock, the Security Council decided, Dec. 18, to instruct Italy and Yugoslavia to continue the search for a Governor of Trieste.

ATOMIC CONTROL, DISARMAMENT, AND UN ARMED FORCES

Although there was general agreement among the members of the UN on the importance of securing arrangements for the control of atomic energy and limitation of armaments, the dissension among the great powers on these problems prevented substantial achievement in both fields. Throughout the year the Atomic Energy Commission, appointed by and responsible to the Security Council, studied and discussed arrangements for the control of atomic energy. Since, however, the Committee's proposals outlining the principles of an atomic control system were opposed by Russia, they failed of adoption. In view of the tension prevailing between Moscow and Washington it appeared that it was, for the time being at least, impossible to take further steps toward the control of atomic energy.

In connection with the question of non-atomic disarmament, the Security Council established the Commission for Conventional Armaments. The Working Committee of this body discussed the general principles of regulation and reduction of armaments and armed forces, but was unable to reach an agreement.

On the related problem of implementing the Charter's provisions that armed forces and facilities should be placed at the disposal of the Security Council by the member states, there was also little progress. After studying the general principles governing the organization of the armed forces to be thus made available, the Military Staff Committee reported to the Council, April 30, that it had been able to reach agreement on only 25 of the 41 articles concerned. Nevertheless, the Committee proceeded to consider preliminary estimates of the over-all strength and composition of the UN armed forces.

NEW UN MEMBERS AND TOTAL MEMBERSHIP

The Security Council, after considering various petitions for UN membership submitted during the year, agreed to recommend only two of the applicants. These successful candidates were Pakistan, the new Dominion in India, and the Arab Kingdom of Yemen, both were admitted to membership Sept. 30.

In the cases of the 11 other states still waiting for admission—Albania, Austria, Bulgaria, Finland, Hungary, Italy, Ireland, the Mongolian People's Republic, Portugal, Rumania, and Trans-Jordan—the Security Council made no recommendations to the

General Assembly. The Assembly, in an effort to gain membership for six of these states—Austria, Finland, Ireland, Italy, Portugal, and Trans-Jordan—went on record during its regular session as declaring them to be peace-loving and, in the case of the last five, able and willing to carry out the obligations of the Charter. In addition, the Assembly asked the Council to reconsider these applications, particularly in view of the fact that the Council had failed to make a recommendation only because of the opposition of one permanent member, the Soviet Union. In response to the Assembly's request the Council reconsidered the applications of two of the states concerned—Italy and Trans-Jordan—but failed to change its position because of Russian opposition. The Assembly thereupon asked the International Court of Justice for an advisory opinion on the question of whether a permanent member of the Security Council could make its consent to the admission of an applicant dependent on conditions not provided for in Article 4 of the Charter, or declare that it would agree to admit one state on condition that other states also be taken in.

GENERAL ASSEMBLY—PALESTINE

Probably the most important political decision made by the UN during 1947 was the agreement, reached Nov. 29, to partition Palestine. Following repeated failures to find a solution to the Palestine problem acceptable to both Arabs and Jews, Britain, which had held the League of Nations mandate in Palestine for the past 25 years decided early in 1947 to place the question before the General Assembly. In order to take action as promptly as possible the Assembly convoked its first special session, April 27, and established a Special Committee on Palestine which was instructed to make recommendations concerning the future government of Palestine. This 11-member body (composed of representatives of Australia, Canada, Czechoslovakia, Guatemala, The Netherlands, Peru, Sweden, Uruguay, India, Iran and Yugoslavia) visited Palestine during the summer and also inspected displaced persons camps in Europe, and completed its report Aug. 31.

The majority report, approved 7 to 3 (Australia abstained), provided for the partition of Palestine into two independent states, one Arab and the other Jewish, and the establishment of an international administration over the city of Jerusalem. The report further proposed that the two independent states should be bound together by an economic union with a common currency, a customs union, pooling of customs revenues, etc. Partition, it suggested, should not take effect until Sept. 1, 1949, and in the meantime Britain should continue to administer the mandate. This latter recommendation was made despite the fact that the British had already indicated that they would terminate the mandate much before that date and would not assist in carrying out a UN decision unless it was acceptable to both Jews and Arabs.

A minority of the Assembly's Special Committee (India, Iran, and Yugoslavia) proposed a federal Palestine. The federal plan provided for the creation of a federal legislature, but with separate Arab and Jewish states, each having control over local affairs, with the important exception of immigration. Control over immigration into the Jewish state was to be placed in the hands of an international commission composed of three representatives each of the Palestinian Arabs, Palestinian Jews, and the UN. Jerusalem was to be the capital of the federal state, and a UN agency was to guarantee the inviolability of the Holy Places.

Despite the disagreement within the Special Committee, all 11 members agreed that the British mandate should be terminated and independence granted to Palestine "at the earliest practical date," and that the General Assembly should take steps to deal with the problem of Jewish refugees in Europe. Accordingly, the Assembly gave particular attention to Palestine at its regular annual session during the autumn, and made repeated efforts to develop a proposal acceptable to Jews and Arabs alike. However, all of these attempts failed, and the Assembly finally voted on the partition plan Nov. 29 and adopted it by a bare two-thirds majority. The vote was 33 to 13 with abstentions and one absence.

According to the partition plan as adopted by the Assembly, Palestine is to be divided into independent states not later than Oct. 1, 1948. The Arab state of 4,500 square miles will include the coastal regions of Acre in the north and Gaza in the south, part of western Negeb, most of Samaria, and an enclave in the Jewish state containing the port city of Jaffa. The Jewish state of 5,500 square miles will comprise the central coastal plain, including Haifa and Tel Aviv, the eastern part of upper Galilee and most of the Negeb region. Jerusalem and its environs will become an international zone with a special régime under the United Nations Trusteeship Council. Territorially, Palestine will thus be split into three sections connected with each other by narrow corridors.

According to the Jewish Agency for Palestine, the population of the three projected areas of Palestine will be as follows:

	Arabs	Jews
Arab State	804,000	10,000
Jewish State	397,000	538,000
Jerusalem Enclave	150,000	100,000

Figures on population supplied by the British government are, however, considerably different:

	Arabs	Jews
Arab State	847,000	10,000
Jewish State	405,000	498,000
Jerusalem Enclave	105,000	100,000

The two states are to agree to a customs union; a joint currency system providing for a single foreign exchange rate; the non-discriminatory operation of systems of communication involved in international trade and commerce; joint economic development, especially with respect to irrigation, land reclamation, and soil conservation; and access for both states and Jerusalem on a non-discriminatory basis to water and power facilities.

As far as implementation was concerned, Britain maintained that it would have no part, or at least no major part, in implementing the partition scheme. Since neither the United States nor any other nation volunteered to assume any special responsibility, the problem of carrying out the plan thus became uppermost. The problem was further complicated by the fact that the decisions of the Assembly constitute mere recommendations to member states. A Canadian formula was finally adopted whereby the Assembly would name a commission to carry out partition, but the commission would be responsible to the Security Council. This arrangement, however, still did not furnish in advance any outside military force in the event of armed opposition to the Assembly's plan. The five-nation Palestine Commission (Bolivia, Czechoslovakia, Denmark, Panama, and the Philippines) was thus obliged to rely on Jewish and Arab militia and its own moral prestige.

Failure to provide any outside military force to enforce partition appeared particularly serious in view of the Arab reaction to the plan. When the final vote was taken in the Assembly, the six Arab delegations walked out of the meeting and served notice that they would not cooperate in the partition scheme. One reason the Assembly failed to provide for this contingency by setting up a strong enforcement agency was the belief on the part of many delegates until the very end that Britain would modify its hands-off attitude. Another was the fact that the United States was unwilling to furnish American troops, partly at least because of its fear that, in doing so, it might offer Russia an opportunity to send Red Army forces to Palestine.

BALKAN COMMITTEE

The General Assembly made another major decision affecting international peace and security when it decided, Oct. 21, to establish a Special Balkan Commission to maintain a watch on Greece's northern borders. This decision, which rested upon a vote of 40 to 6 with 11 abstentions, was taken only after lengthy and bitter debate in the course of which Russia maintained that the Greek government was solely responsible for the civil war in Greece. The majority of the Assembly, on the other hand, regarded as valid the report of the Security Council's Balkan Commission (see The Greek Issue) and called on Albania, Bulgaria, and Yugoslavia to refrain from furnishing aid and assistance to the Greek guerrillas. The Assembly recommended that the four Balkan governments cooperate with the new Special Balkan Committee in carrying out this request, and it empowered the Committee to recommend a special session of the General Assembly if it considered this step necessary.

The Special Balkan Commission, which has its headquarters in Salonika, consists of representatives of Australia, Brazil, China, France, Mexico, The Netherlands, Pakistan, the United Kingdom, and the United States. Places on the Committee have also been held open for Poland and the U.S.S.R., but both these states have declared that they will not take part. Even more serious than the Soviet boycott from the point of view of the Committee's effectiveness has been the refusal of Albania, Bulgaria, and Yugoslavia to permit this UN organization to make on-the-spot investigations of incidents on the northern side of the Greek frontier. Under these conditions the Committee has been seriously hampered in its efforts to report on the numerous armed clashes which have occurred near the Greek frontier.

KOREA

In an effort to break the Soviet-American deadlock, which prevented the restoration of unity and independence to Korea, the United States requested the General Assembly to take action on this problem. The resolution adopted by the Assembly, Nov. 14 (43 to 0 with 6 abstentions), provided that elected representatives of the Korean people should be invited to take part in consideration of ways and means of reestablishing and maintaining their country's independence. In order to make certain that these representatives were fairly elected and not merely appointees of the Soviet or American military authorities, the Assembly recommended that elections should be held not later than March 31, 1948, on the basis of adult suffrage and by secret ballot, and under the observation of a United Nations Temporary Commission on Korea. This body, which would have powers to travel, observe, and consult throughout the country, was to consist of representatives of Australia, Canada, China, El Salvador, France, India, the Philippines, Syria, and the Ukrainian S.S.R. (The Ukrainian S.S.R. announced that it would not take its place.)

According to the Assembly's recommendation, the representatives chosen in the scheduled election should then constitute a National Assembly, which would convene as soon as possible after the election and form a National Government of Korea. This National Government, the Assembly further provided, should, in consultation with the Commission, take over the functions of government in both North and South Korea and arrange with the Soviet Union and the United States for the complete withdrawal of their armed forces as early as practicable and if possible within 90 days. From the outset, however, the Commission on Korea had few prospects for success since Russia made it clear that it would not permit this body to enter northern Korea.

THE LITTLE ASSEMBLY

One of the most important and bitterly contested actions of the Assembly was its decision to establish the Interim Committee of the General Assembly, or the "Little Assembly." This proposal, which was adopted Nov. 13 by a vote of 41 to 6, with 6 abstentions, provides that a special subsidiary body shall aid the Assembly in carrying out its responsibilities for international peace and security by considering all matters referred to it by the Assembly during the period prior to the Assembly's next regular session in the autumn of 1948. The Committee, whose major decisions must be made by a two-thirds majority of those members present and voting, is to report only to the Assembly and is not to consider any matter before the Security Council.

The establishment of the Little Assembly was strongly urged by Secretary of State Marshall in his opening address to the General Assembly. Russia, on the other hand, together with the five countries of eastern Europe and the Balkans which have consistently voted on its side—Poland, Czechoslovakia, Yugoslavia, Byelorussia, and the Ukraine—strongly opposed the suggestion. Following the adoption of the proposal, Russia and its supporters declared that they would boycott the newly created organ and would resist voting UN funds for its maintenance.

In proposing the creation of the Interim Committee, the American delegation advanced two main arguments. First, it contended that the Committee, meeting in intervals between sessions, would enable the General Assembly to discharge more effectively than formerly the functions with respect to maintenance of peace entrusted to it under the Charter. Second, it believed that by dealing in the interim with such political and security problems as might be brought before it, the Committee would enable the Assembly, at its necessarily short annual sessions, to devote more attention to other matters within its scope, notably economic and social problems and the work of the specialized agencies of the UN, which have heretofore been neglected because of the urgency of political discussions. The United States strongly denied the Soviet contention that the Little Assembly was intended to by-pass the Security Council, although the American and other delegations at the UN admitted regret that the excessive use of the veto by Russia had deadlocked the work of the Council and thus made it more desirable than ever to strengthen the Assembly.

THE VETO

The "veto" or rule whereby a dissenting vote by one of the five permanent members of the Security Council can block action on a substantive question, continued to be a controversial topic, and the Assembly vainly attempted to secure action on its previous recommendations on this matter. During 1946, the Assembly had requested the five permanent members of the Council to make every effort to ensure that the use of their special voting privilege would not impede the Council in reaching decisions promptly. The Assembly had further urged the early adoption of practices and procedures to reduce the voting difficulties and to ensure prompt and effective exercise by the Council of its functions. Since, however, the Security Council had merely referred the problem of the veto to its Committee of Experts for consideration and suggestions, the 1947 session of the Assembly reconsidered the entire question. On this occasion, Argentina presented a proposal to the effect that a General Conference should be called in order to amend the UN Charter by abolishing the veto. China, approaching the problem from a different angle, suggested limiting the use of the veto by the less drastic method of revising existing procedure in the Council.

The outcome of the Assembly's discussion of the veto was the adoption, Nov. 21, by a strongly contested vote, of a United States proposal whereby the Assembly made three requests to the Little Assembly. First, it asked the interim body to consider the problem of voting in the Security Council and to consider the Argentine and Chinese proposals in this connection. Second, the Assembly requested the Committee to consult with any representatives which the Security Council might designate to cooperate with it in the study of the problem. Finally, it asked the Committee to report its conclusions to the 1948 regular session of the Assembly. The Assembly further requested the Big Five to consult with each other for the purpose of reaching agreement on measures which would prevent the veto from blocking action by the Security Council.

WAR PROPAGANDA

The only measure proposed by Russia during the regular session of the General Assembly was a resolution denouncing "warmongering." In its original form, as proposed by Deputy Foreign Minister Vishinsky, this resolution was made with specific reference to the United States, Greece, and Turkey. In a vituperative speech, Sept. 17, the Soviet delegate charged that the United States, England, Turkey, and Greece were guilty of warmongering attacks on the Soviet Union.

Despite the vigorous opposition of the United States, which declared that the Russian resolution should not even be considered, the General Assembly decided to study the proposal. Instead, however, of adopting the Soviet suggestion in its original form, the Assembly accepted, Nov. 3, a resolution which was greatly softened by a compromise draft worked out by Australia, France, and Canada. This draft omitted any references to specific nations, appealed to all governments to abstain from war propaganda and to promote friendly relations among all nations.

TRUSTEESHIP SYSTEM

At the close of 1947, ten territories had been placed under the International Trusteeship System. Eight of these Trusteeship Agreements were approved by the General Assembly, Dec. 13, 1946, thus making the Trusteeship System an active part of the UN. The Trusteeship Council convened at Lake Success for its first session March 26, 1947. As at present constituted, the members of the Council are Australia, Belgium, France, New Zealand, United Kingdom, China, United States, and Soviet Union.

The first eight Trust Territories, all of which were former mandates, were: New Guinea, administered by Australia; Ruanda-Urundi, administered by Belgium; Togoland and Cameroons, administered by France; Western Samoa, administered by New Zealand; and Tanganyika, Togoland, and Cameroons administered by the United Kingdom. The two Trust Territories placed under the Trusteeship System in 1947 were the Pacific Islands, administered by the United States, and Nauru, administered by Australia, New Zealand, and the United Kingdom. Since the Pacific Islands, which were formerly held by Japan under a mandate and occupied by the United States in the Second World War, included strategic areas, they were placed under an agreement which required the approval of the Security Council. This agreement was given April 2. Nauru, which did not come under the special provisions for strategic trust territories, was placed under a Trusteeship Agreement submitted to the Assembly. The Assembly took favorable action on this agreement Nov. 1.

On the same day that the Assembly took action on Nauru, the Assembly urged the Union of South Africa to submit a Trusteeship Agreement for the mandated territory of South West Africa. This marked the second time within a year that the Assembly recommended that South West Africa be placed under international supervision instead of being incorporated into the Union. By the close of 1947, however, South Africa had not complied with this request.

One petition submitted to the Trusteeship Council was from the Ewes, an African tribe of approximately 1,000,000 population living along the coast just north of the equator and on the south side of the bulge which constitutes West Africa. In their petition, the Ewes asked for the early unification of their people, some of whom are in British Togoland, some in French Togoland, and still others in the Gold Coast, a British colony. After consideration, the Trusteeship Council decided not to recommend unification at the present time. However, it promised to reconsider the problem of the two Togolands after it has had a chance to see how the joint measures proposed by Britain and France to diminish present difficulties work out in practice.

SPECIALIZED AGENCIES OF THE UN

While popular attention was centered on the political disagreements in the Security Council and General Assembly, the UN "specialized agencies"—autonomous inter-governmental organizations concerned with social and economic problems—continued to push forward in their particular fields of work.

WORLD HEALTH ORGANIZATION

The World Health Organization (WHO) took decisive steps in fighting the serious cholera epidemic which broke out in Egypt during the autumn. A committee of WHO quarantine experts gave advice on quarantine measures and assembled seven tons of anti-cholera vaccine and other medical supplies which were used effectively in halting the spread of the disease. This action marked the first time in medical history that an epidemic which was spreading at the rate of more than 1,000 new cases a day was checked in a period of approximately six weeks.

UNESCO

Among the chief problems faced by the United Nations Educational, Scientific and Cultural Organization during 1947 were those arising from the all-embracing language of its constitution, which permits the scattering of UNESCO activities in many directions. In an effort to define its tasks more precisely, the organization devoted its annual conference at Mexico City (Nov. 6-Dec. 4) to trimming down its program to fit a budget of less than $8,000,000. Nevertheless, the activities sponsored by UNESCO continue to be divided and subdivided among a large number and variety of projects. The six main areas in which UNESCO is working are reconstruction, education, communications, cultural interchange, social sciences, and natural sciences.

INTERNATIONAL REFUGEE ORGANIZATION (IRO)

The International Refugee Organization, which is the most recent arrival among the human welfare agencies of the UN, is now caring for 656,831 of the estimated 1,500,000 displaced persons in Europe. In addition, IRO succeeded during the period from July 1, when it assumed UNRRA's responsibilities for finding new homes for refugees, until Dec. 1, in resettling or repatriating 76,525 persons out of a total of 900,000 to 1,000,000 men, women and children who will ultimately need assistance of this kind. Tentative IRO agreements with some 15 countries are expected to result in the resettlement of 314,000 displaced persons in the next three years. To facilitate this program, IRO operates a fleet of eight ships, which have been steadily carrying refugees to Australia, Canada, and Latin America. Since, however, the receiving countries have laid down stringent physical and occupational requirements for immigrants, resettlement has been highly selective, and the IRO now faces the problem of what to do with those persons who are too old, too young, or physically unfit. In addition, IRO is hampered by serious budgetary problems. In May, a budget of $115,645,000 was adopted to cover operations during the fiscal year 1947-48. This figure represents a considerable cut below the minimum budget prepared by the IRO Secretariat and allows only $18,000,000 for repatriation and resettlement activities.

CIVIL AVIATION ORGANIZATION (ICAO)

The Interim Civil Aviation Organization continued to make progress in the technical field of international rules of the air, ground aids, airworthiness of aircraft, and the licensing of personnel. However, in the broader field concerned with the rights which the commercial aircraft of one nation should receive in the air over another nation, ICAO has been unable to make headway. Despite efforts within ICAO to define commercial rights in a multilateral agreement open to all, nations are continuing to exchange air rights on a bilateral basis and in return for special privileges.

The chief reason for ICAO's failure to secure adoption of a multilateral air agreement has been the disagreement over the question of whether long-distance airlines should be given the right to pick up local traffic along the way. This right is advocated by countries having long-distance airlines, such as Britain and the United States, and is opposed by those with local lines which fear the competition of the long-distance lines. Because of disagreement on this point, the special meeting which ICAO sponsored in Geneva (Nov. 3-27), in a fourth effort to draw up a multilateral agreement on commercial aviation rights, failed.

FOOD AND AGRICULTURE ORGANIZATION (FAO)

FAO, by continuing to collect and publish information on the world food situation, has become the world's foremost information agency on questions of agricultural products, fisheries, and forestry. FAO has not been content, however, merely to gather facts and has used its right to make recommendations on food problems to member nations. In addition, FAO has put its technical knowledge to work by sending out special missions and technical experts when requested. During the spring an FAO mission to Poland made a careful analysis of Polish agriculture and recommended certain changes directed toward halting decline in soil fertility and increasing the supply of dairy cattle. Similar FAO missions will be sent to Siam and Venezuela early in 1948.

Whether FAO will succeed in becoming the focal point of international action concerning agricultural problems is still an open question. Argentina and Russia, two of the world's agricultural countries, have failed to join the organization. Moreover, the proposal by the United States Secretary of Agriculture, Nov. 21, that a separate conference of food-producing nations be called to consider means of improving production and distribution of food throughout the world, suggested that the United States might also prefer to work outside the FAO framework on certain matters of international concern.

INTERNATIONAL BANK

According to the quarterly financial statement of the International Bank for Reconstruction and Development, issued as of Sept. 20, the Bank has made the following loan commitments: France, $250,000,000; The Netherlands, $195,000,000; Denmark, $40,000,000; Luxembourg, $12,000,000—a total of $497,000,000. At that time, the Bank had a balance of $480,000,000 available for new loans. In December, the Bank announced the dispatch of a mission to Chile to study Chile's application for a loan. A Polish request for a loan was turned down by the Bank following Poland's refusal to attend the Paris conference of the 16-nation committee formed to study the Marshall Plan.

The Bank vigorously objected to the proposal by the Harriman Committee (see "United States and Europe") that it furnish a sizable portion of the $3,400,000,000 which it was estimated that the nations cooperating in the European Recovery Program would need during the period 1948-52 for the purchase of industrial capital goods. The Bank pointed out that, of its total capital of $8,000,000,000, only a fifth of this amount is to be actually paid in by the member nations and used for loans, while the remaining unpaid capital is to remain on call in case of defaults on loans. Moreover, the Bank declared, it has many members besides the 16 European nations to be aided by the United States under the ERP, and it could not, therefore, concentrate on aiding these countries without violating the spirit of its charter.

OTHER AGENCIES

The International Labour Organization (ILO) held a series of regional meetings at each of which resolutions dealing with local working conditions were adopted. The Universal Postal Union (UPU) held its first session since the close of the war and resumed normal operations. The International Telecommunications Union (ITU) underwent a reorganization and began preliminary work on the reallocation of wave-length bans for international broadcasts. A preliminary charter for the proposed International Trade Organization (ITO) was completed at a technical conference in Geneva and submitted to a conference of ITO members at Havana. In an effort to bridge international differences in the field of commercial policy, the draft Charter was made an extremely flexible instrument. Nevertheless, at the close of 1947, the Havana conference, which began Nov. 21, had proved unable to reconcile the conflicting interests of the major trading nations of the world.

PLANNING UN HEADQUARTERS

Early in 1947, a Headquarters Planning Office was established to carry forward the plans for a permanent UN headquarters on the site in Manhattan, New York City, which had been acquired as a result of a gift from John D. Rockefeller in 1946. Demolition of existing properties on the site, which is bounded by First Avenue, East 48th Street, East River, and East 42nd Street, was nearly completed by the close of the year. The General Assembly also granted authority to the Secretary-General to negotiate with the United States Government for a $65,000,000 interest-free loan for the construction of the permanent headquarters. President Truman had previously indicated his willingness to ask Congress to grant approval for the loan.

ECONOMIC AND SOCIAL COUNCIL (ECOSOC)

The large number of commissions and sub-commissions established under ECOSOC for the purpose of dealing with economic and social matters continued to work on a wide variety of projects. The Economic Commission for Asia and the Far East began to collect statistical and economic data which might form the basis for projects designed to raise the low standard of living of the countries of Asia. The Economic Commission for Europe studied problems connected with road and rail transport, industry, coal, and manpower, and made a number of recommendations to the European countries concerned. Preparations were also begun for the creation of an Economic Commission for Latin America, whose task would be to study the problems of the under-developed economies of this area.

Work on a proposed International Bill of Rights was begun by the Human Rights Commission in January 1947. The final draft of the bill was accepted by the Commission, Dec. 16, by a vote of 13 to 0, with the U.S.S.R. and three eastern European nations abstaining on the grounds that the declaration did not go far enough in establishing human rights. The draft, following presentation to all members of the UN for comment, will be brought before the 1948 session of the General Assembly. Among the 35 articles included in the draft are provisions for the abolition of slavery and forced labor, the right to a fair trial, freedom of assembly, and freedom of religious opinion, worship, and teaching, the right to asylum from persecution, and the right of any person to be presumed innocent until proved guilty.

THE UNITED STATES AND THE PEACE TREATIES

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GENERAL

At the beginning of 1947 the Big Four (U. S., Gt. Britain, France, Russia) had just completed peace treaties with Italy, Bulgaria, Rumania, Hungary, and Finland, and these agreements were formally signed at a simple ceremony held at the French Foreign Ministry in Paris Feb. 10. This progress toward peacemaking gave rise to a guarded hope in the United States that American and Russian views on the crucial problem of Germany might be accommodated in the near future. Instead, however, of smoothing the way toward a German settlement, the treaties with the former Axis satellites led only to another round of tense and tedious negotiations. In fact, work on the German and Austrian settlements proceeded even more laboriously than had the discussions leading to the conclusion of the satellite treaties, and the year 1947 closed with East and West deadlocked on all major questions concerning the future of Germany and Austria.

TREATIES WITH AXIS SATELLITES

The first five peace treaties to be concluded after the Second World War were the product of a long period of negotiations which had been begun in London in September 1945 at the first session of the Council of the Big Four Foreign Ministers, the body established by the Potsdam Conference in August 1945 as the principal organ responsible for drafting the peace treaties. Between the close of this parley and the actual signing of the treaties, three additional meetings of the Foreign Ministers, a special session of the representatives of the Big Three, and a peace conference of 21 nations had been required to formulate the terms of the settlements. The chief reason for this slow diplomatic pace had been the succession of sharp clashes between Russia and the Western powers which attended nearly every step of the treaty negotiations. (For the main provisions of the treaties with Italy, Bulgaria, Rumania, Hungary and Finland, see "The United States and the Peace Treaties," The American Year Book, 1946.)

In the United States the treaties with Italy, Bulgaria, Hungary, and Rumania were generally regarded as unsatisfactory in several respects. (Since the United States had not been at war with Finland it did not sign the peace treaty with that country.) One chief source of dissatisfaction was the series of clauses which provided for the payment of reparations to Russia and thus gave the Soviet Union long-term economic controls over the former enemy nations. In the case of Italy, it was also felt that the terms were unduly harsh and imposed such heavy burdens that moderate forces might not be able to retain control of the government. Nevertheless, the prevailing American view was that the treaties constituted the best arrangements which could be obtained at that moment or in the foreseeable future, and they were accepted on this basis.

The two public leaders chiefly responsible for securing general public acceptance of the treaties were former Secretary of State James F. Byrnes, who had represented the United

States in most of the treaty negotiations, and Secretary of State George C. Marshall. During the early months of 1947 these two men strongly urged the Senate to ratify the agreements despite certain admittedly "unsatisfactory features." The advantages of prompt and favorable American action, they argued, would be threefold. First, ratification would pave the way for the withdrawal of occupation troops from Italy and the former satellite states in eastern Europe. Second, the arrangements might "create an element of stability and encourage further progress along the road to peace." Finally, the former enemy states, by becoming eligible for admission to the United Nations, would obtain the right to appeal to the international organization for the settlement of future problems affecting their peace and security.

OPPOSITION TO RATIFICATION

One voice raised against prompt ratification of the treaties was that of Adolf A. Berle, Jr., former Assistant Secretary of State. In a statement issued on Feb. 10, Berle contended that, since the treaty negotiations had revealed a wide gap between the U.S.S.R. and the Western powers, the treaties themselves could not be relied upon to establish a satisfactory basis for peace. He proposed accordingly that the United States defer action, at least in the case of Italy, until Soviet-American relations improved. However, with the exception of Berle and leaders of Italo-American groups, the treaties met with little well-organized opposition, and the debate in the Senate culminated in ratification on June 5. At this time the agreements with Bulgaria, Hungary, and Rumania were accepted by acclamation, and the Italian treaty was ratified by a vote of 79 to 10.

RATIFICATION OF ITALIAN TREATY

Although Senatorial acceptance of the treaties had never been seriously in doubt, the size of the majority favoring the Italian settlement was largely traceable to the efforts which Senator Arthur H. Vandenberg, Republican of Michigan and Chairman of the Foreign Relations Committee, made in behalf of ratification. While admitting that he could not approve all the detailed engagements set forth in the pending Italian treaty, he argued that the United States was in no position to change these provisions unilaterally even if it wished to do so. Moreover, he argued, by delaying action on the treaty the United States would merely perpetuate confusion and uncertainty in Italy and throughout Europe as a whole, thus further delaying the reconstruction which this country wished to encourage. In reply to the contention that ratification should be postponed lest the withdrawal of American forces leave Italy at the mercy of armed subversion at home and penetration by hostile neighbors, the Senator declared that the United Nations should be able to find a way to defend Italian democracy. In a further effort to reassure the Senate, he stated that ratification would not necessarily rule out changes in those treaty provisions which the United States found undesirable. Article XIV of the United Nations Charter, he stated, specifically empowered the General Assembly "to recommend measures for the peaceful adjustment of any situation, regardless of origin, which it deems likely to impair the general welfare or friendly relations among nations."

REVISIONIST MOVEMENT BY THE SATELLITE STATES

Despite these and similar assurances on the part of American leaders the former satellite states received the treaties with varying degrees of dissatisfaction, and four of these nations promptly launched a revisionist movement. Italy was particularly outspoken in its opposition and observed Feb. 10 as a day of national mourning. Rumania, Hungary, and Bulgaria, whose representatives joined Italy in addressing formal notes of protest to the Council of Foreign Ministers, discreetly restricted their objections to those portions of the treaties which did not directly affect Russia. Only Finland, whose government was also known to dislike several portions of its treaty, refrained from registering any formal objections lest in doing so it arouse Russia's suspicions.

Despite dissatisfaction on the part of both the Allies and the former Axis satellite states with certain portions of the peace treaties, all five agreements were ratified and put into effect by September 1947. Since, however, Russia was permitted to maintain an undefined number of troops in Hungary and Rumania until a peace with Austria had been arranged, the withdrawal of troops envisaged by the treaties was not entirely carried out by the end of the year. Moreover, inability of Russia and the Western powers to agree on a governor for Trieste blocked the numerous efforts of the United Nations Security Council to establish the special régime which the Italian treaty proposed for this Free Territory. Meanwhile Trieste and the surrounding territory remained under military occupation, and numerous incidents between British and American forces, on the one hand, and Yugoslav troops, on the other, made the area one of Europe's trouble spots.

ALLIED DISAGREEMENT ON AUSTRIA

As soon as the peace settlements with the five former Axis satellites had been concluded, the Allies moved on toward a consideration of the crucial problem of Germany. Austria, which had been completely absorbed in Hitler's Reich following the Anschluss of 1938, formed one phase of this problem, and in the winter of 1946-47 the United States began to urge persistently that the Big Four appoint deputies to start work on an Austrian treaty. According to the American view a settlement should be arranged with Austria as soon as possible in order to terminate the quadripartite military occupation of the country. The presence of foreign troops, the United States contended, was not only the chief obstacle to the peacetime recovery of Austria, whose economy had been heavily subsidized by British and American aid since the end of the war, but a continuing source of inter-Allied friction.

In response to the suggestion by the United States that work on an Austrian settlement should proceed as rapidly as possible, the deputies of the Foreign Ministers met in London, Jan. 14 to Feb. 25, 1947, to prepare a draft treaty. At these sessions, however, such bitter clashes occurred between the American and Russian delegates over territorial changes, reparations, and the definition of "German assets" that agreement was reached on only a limited number of minor clauses. Moreover, the differences among the deputies proved to be only the prelude to even more acrimonious exchanges among the Foreign Ministers themselves when they met in Moscow (March 10-April 24) and again in London (Nov. 25-Dec. 15). Thus the year ended with Austria still subject to military occupation and with its prospects for a peace treaty in the near future decidedly poor.

Basically, the failure of the Allies to reach agreement on the terms of an Austrian treaty can be traced to the peculiarly significant geographical position of Austria between East and West. Although only approximately the size of North Carolina, with an area of 32,000 square miles and a population of less than 7,000,000, Austria stretches from the edge of the Slavic lands to within 100 miles of the French frontier. This strategic location, which has been an essential element in determining Austria's history for centuries, makes the country a crossroads in post-war Europe which neither the Russians nor the Western powers are willing to see their rivals control.

DEFINITION OF "GERMAN ASSETS"

The more immediate cause of the inter-Allied stalemate was the disagreement between Russia and the West on three points. The Soviet Union demanded that Austria surrender Southern Carinthia and Southern Styria to Yugoslavia, and it supported the Yugoslav demands for $150,000,000 in reparations. The United States opposed both these requests. The third point in the controversy was the definition of "German assets" in Austria. At the Potsdam Conference of 1945 the Big Three had listed "German assets" in Austria as a source of reparations without, however, attempting to define these assets. According to the Russian view, the term referred to all German-owned property in Austria at the end of the war. On the basis of this broad interpretation Soviet occupation authorities proceeded to remove factories, hydro-electric equipment, machine tools, iron and manganese deposits in their zone which had belonged to the Germans, and they laid claim to similar properties in the western zones. Also included in the Russian confiscations were farm and forest lands, Danubian shipping, railroads, and the network of highways which the Nazis had built or were preparing to build when the war ended.

Russia's broad definition of German assets, which apparently reflected the U.S.S.R.'s determination to link Austria's industrial economy with the predominantly agricultural Soviet sphere in eastern Europe, was strongly opposed by the Western powers, and particularly by the United States. According to the American view, the Russians had misinterpreted the Potsdam arrangement on German assets and erroneously included in their definition property which was actually Austrian since many of the so-called Nazi purchases of Austrian holdings had been made by force or duress. Only by investigating the conditions under which the Germans had secured title to specific Austrian properties, the United States contended, could a just settlement of this problem be reached. Furthermore, the United States maintained, if the Soviet definition of German assets were admitted, Austria would be deprived of all hope of independence. Accordingly, Secretary Marshall formally requested the Moscow session of the Council of Foreign Ministers to define German assets, provide for arbitration in the case of disputed ownership, and require the application of Austrian law to properties obtained as *bona fide* German assets. This last request represented an attempt to prevent Russia from exercising extraterritorial rights over the oil fields and other stationary properties it had seized in its zone as reparations.

When the Moscow conference failed to agree on any of the points connected with the question of German assets, Secretary Marshall suggested that the United States might go before the United Nations General Assembly and ask it for its recommendations on this subject. "It is our view," he declared, "that we should not permit differences among us to deny to Austria her independence and her right to be free from the burdens of occupation." Confronted by this American proposal, which threatened to transfer responsibility for peacemaking from the Big Four to the United Nations as a whole, Russia agreed at the final meeting of the Moscow session to establish a four-power Austrian treaty commission which would be instructed to seek means of adjusting the differences concerning German assets. Joseph M. Dodge, Detroit banker and former financial adviser to the American Military Governor in Germany, represented the United States on this commission, which held meetings in Vienna from May 12 to Oct. 11.

AUSTRIAN TREATY COMMISSION

The Austrian treaty commission was paralyzed from the outset because of disagreement between Russia and the Western powers as to its proper function. The American representative insisted that the commission had been created to study the facts involved in specific cases involving alleged German assets. The Russians, on the other hand, declared that the commission should restrict itself to a discussion of a formal definition of German assets. According to the Soviet delegate, M. V. Novikov, Russia considered the determination of concrete facts on German properties in Austria a "political rather than a technical matter" and hence beyond the competence of the commission. Although this particular impasse on procedure was broken during the middle of June, when the Soviet Union agreed to discuss particular German assets, provided the cases chosen for consideration were selected on the basis of unanimous agreements, the commission remained deadlocked because of Russia's refusal to permit discussion of more than a few questions.

Despite the failure of the Austrian treaty commission to find a basis for agreement on the problem of German assets, the United States and Britain continued to hope that a treaty for Austria might be drafted at the London session of the Council of Foreign Ministers. Austrian Prime Minister Karl Renner also called on the Foreign Ministers to find a general solution for Austria "which will free her from imposed international entanglements." Russia, on the other hand, indicated that it was in no hurry to conclude an Austrian treaty. Thus Foreign Minister Molotov rejected a compromise proposal by France which conceded Soviet capital reparations in oil and Danubian shipping and requested Russia and the other allies to specify the monetary value of their other claims to German assets with a view to charging them against Austrian current production over a period of eight to ten years. Since the Western powers felt that they could propose no further concessions on this point, the London conference, like its predecessor in Moscow, failed to reach an agreement on Austria. In American and British diplomatic circles it was believed that Russia wished to delay the Austrian settlement, not only because the Soviet Union needed time to consolidate its economic control over eastern Austria, but because Soviet leaders thought that continued uncertainty in Austria might produce a preponderantly Communist electorate. Moreover, as long as Austria remained under Allied occupation, Russia was permitted by the terms of the Rumanian and Hungarian peace treaties to maintain its lines of communication through these countries, thus strengthening the Soviet position throughout eastern Europe.

DEADLOCK ON GERMAN TREATY

On the problem of Germany the deadlock between Russia and the Western powers was as complete as in the case of Austria, and at the close of 1947 it appeared that further negotiations for a German treaty would be postponed until East and West struck a balance in Europe as a whole. The first full-dress discussion of Germany by the Big Four Council of Foreign Ministers was held at Moscow in March and April. At this conference, as in the case of previous discussions of Germany by the Big Three at Yalta in January-February 1945 and Potsdam in July-August 1945, and by the Foreign Ministers at sessions devoted primarily to the treaties with the Axis satellites, the main issues were reparations, frontiers, and the nature of the political organization of the new German state.

At Moscow the reparations debate centered on the interpretation of decisions which had been reached at the Yalta and Potsdam conferences. According to Foreign Minister Molotov, who publicly revealed the secret decisions of the Yalta meeting for the first time, President Roosevelt had accepted as "a basis for study" the Soviet figure of $20,000,000,000 worth of reparations at 1938 values, of which Russia was to receive half. Moreover, the American President had agreed to direct the Reparations Commission established by the Big Three to consider production from current output as well as capital removals as possible sources of reparations. Although the United States had committed itself at Yalta only to consider the large figure proposed by Russia, and the British delegation had refused to accept the Soviet suggestion even on this basis, the Soviet representatives at Moscow interpreted the Yalta protocol as meaning that the three powers had agreed that Germany should pay $20,000,000,000 in reparations and that this sum should be paid from current production as well as from stocks of capital goods existing at the end of the war. In combating this figure, the American and British delegations argued mainly from the text of the Potsdam agreement, which, they declared, had superseded the tentative plans laid at Yalta. At Potsdam, the Western powers pointed out, the amount of German reparations had not been definitely set but had been made contingent upon the establishment of an economically united and self-sufficient German economy. Moreover, the Western powers contended, although the Potsdam arrangements had not explicitly restricted reparations to capital removals, the agreement that Germany should retain productive capacity sufficient only to assure a minimum standard of living implied that Germany should not pay reparations out of current output.

CONFLICT OVER REPARATIONS

Underlying the Russian interpretation of the reparations agreements previously reached by the Big Three at Yalta and Potsdam was the Soviet determination to make Germany pay as much as possible toward the reconstruction of the U.S.S.R. At first the Russians had apparently believed that they could achieve this goal by moving entire German factories and other capital goods to the Soviet Union. During the months immediately following the close of the war the Russian authorities concentrated on wholesale removals of German equipment to Russia and favored the reestablishment of a relatively low level of industry in Germany. By mid-1946, however, the Soviet Union began to find this approach to the reparations problem unsatisfactory, for they encountered endless difficulties in reestablishing German plants and were able to achieve only a fraction of the productivity they had anticipated. Under these conditions Russia came to consider large-scale reparations from current output as an essential supplement to reparations from capital output. At the Moscow conference, therefore, Russia implied that it was prepared to support measures leading to the economic unification of Germany, as the United States and Britain had urged since Potsdam, provided the Western powers would accept its views on reparations. Another factor responsible for the Russian decision to support economic unification under certain conditions was the apparent Soviet belief that economic unity would lead to the political unity which the Soviet Union supported in an apparent effort to win German favor.

The chief economic objective of the United States and Britain in Germany continued to be the reestablishment of German self-sufficiency. Both of the Western powers found themselves in the paradoxical position of paying what amounted to reparations in reverse, for during 1947 the occupation of Germany cost the United States and Britain $350,000,000 each, in addition to the maintenance of their own military forces. Under these conditions the Western powers opposed the Russian demands for reparations on the grounds that these requests would make it necessary for the West to continue to subsidize Germany over a long period. For no matter how high the level of German industry might be placed in theory, American and British representatives maintained there were definite practical limits to the production which Germany would be able to achieve for several years to come. Moreover, even if Germany were able to produce in excess of its own basic needs, the United States and Britain wished to see the Germans send a sizable amount of this surplus to Western European countries.

Faced with this impasse on the problem of reparations the United

States delegation offered a limited concession at Moscow. To understand the nature of this proposal and the economic issues involved in it, it is necessary to refer to the level-of-industry plan of March 1946 whereby the United States determined the output and industrial capacity to be permitted in its zone of Germany under the provisions of the Potsdam arrangements. This plan had been based on the assumptions that the German population would prove no larger than the estimate made in March 1946 and that the German frontiers would be those suggested at Potsdam. By the time of the Moscow conference, however, it was clear that the German population was, in fact, some 4,000,000 larger than the estimate. The United States and Britain had also agreed to the detachment of the Saar territory in favor of France. Hence the German population was larger and the German territory smaller than originally postulated, and it was evident that a reconsideration of Germany's permitted industrial level was in order. By the time of the Moscow conference, moreover, American officials had become convinced that Germany should make a contribution to economic recovery in Europe and that this would be possible only if the Germans were allowed to produce at a rate substantially above that which had been envisioned in the spring of 1946.

Since the upward revision of the German industrial level as proposed by the United States would clearly reduce the plant and capital equipment available for reparations, the American delegation at Moscow proposed to compensate prospective reparations recipients by commuting the value of capital equipment which would otherwise be removed as reparations into reparations from current output. Thus the United States, while refusing to accept the Soviet figure of $20,000,000,000 worth of reparations, was willing to permit the collection of an unspecified quantity of reparations from the current production of a united Germany, provided certain requirements were met. In essence, these requirements called for the postponement of reparations from current production until Germany achieved economic self-sufficiency at a subsistence level.

To the Soviet Union the American proposal for a reparations settlement was regarded as completely unacceptable, and the Russian delegation reiterated its Yalta claims and in effect repudiated the reparations program which had been worked out by the Big Three at Potsdam. The Moscow session of the Foreign Ministers ended, therefore, with the participants even further apart on the question of reparations than they had been before. Moreover, even if agreement had been reached on reparations, there were indications that the Allies would not have been able to work out a political solution in Germany. For example, important differences arose in Moscow concerning the composition of a provisional German government and its powers. In general, the Soviet delegation argued that central German governing bodies should be composed not only of duly elected representatives but should include "representatives of free trade unions and other anti-Nazi organizations." The Western powers, which assumed that "anti-Nazi" would be interpreted as meaning pro-Communist, rejected the Soviet formula.

FORM OF GERMAN GOVERNMENT IN QUESTION

While the United States, Britain, and France favored a central German government of limited powers with residual powers belonging to the *Länder*, the Soviet delegation argued for more power for the central government and attempted to win favor in Germany by defending the rights of Germans to determine such questions for themselves. A comparable question arose in connection with the structure of trade unions. The French wanted to limit unions to the area of the *Länder*. The United States and Britain favored national unions, but the United States, in particular, fearing Communist domination of a centralized trade union movement, favored the financial and organizational autonomy of the individual unions. The Soviet Union again took the position, popular in Germany, that this was a matter for the Germans themselves to work out.

DISAGREEMENT ON FRONTIERS

On the problem of the final delimination of the Polish-German boundary the Moscow conference revealed another sharp difference between Russia and the Western Allies. According to the Soviet Union, the approximately 40,000 square miles of eastern German territory which the Potsdam conferees placed under Polish administration had already been awarded to Poland. The United States, on the other hand, argued that the Polish-German frontier had not been settled. The Potsdam protocol, the American delegation pointed out, provided only that "the final delimination of the western frontier of Poland should await the peace settlement." According to the United States, this settlement, while compensating Poland for Polish territory acquired by the Soviet Union east of the Curzon Line, should not create a popular issue for militant nationalist movements in Germany and rule out all hope that in future years Polish-German relations might become peaceful and cooperative. The United States proposed, therefore, that, while southern East Prussia and German Upper Silesia and its industrial complex should become Polish, the remaining territory, consisting largely of agricultural lands, should be divided on the basis of a consideration of the needs of the Polish and German peoples and of Europe as a whole.

The failure of the Moscow conference convinced the United States that the settlement of the German problem might be long delayed and that in the meantime it was necessary to increase production in western Germany with a view to aiding the recovery of Europe and to reducing the cost of the German occupation to the American taxpayer. Accordingly, the Marshall Plan was announced six weeks after the Moscow conference (see "The United States and Europe"), and the United States took the lead in revising the level of industry permitted in the combined British and American zones of western Germany.

WESTERN ECONOMIC POLICY IN GERMANY

An important step in the development of a new economic policy toward Germany had, in fact, already been taken by President Truman at the end of January, when he appointed former President Herbert Hoover to review conditions in the American zone. In a report dated March 18, Hoover declared that present American economic policy, as set forth in the directive issued by General Eisenhower in April 1945 (JCS 1067) and the Potsdam Declaration of 1945, reflected the influence of the Morgenthau "deindustrialization" plan. This plan, he continued, could only prevent economic recovery in both Germany and Europe and increase the heavy financial burdens of the United States. The only way to make Germany self-supporting and an asset to European recovery, he concluded, was by restoring German heavy and light industries to full production.

Following the failure of the Moscow conference to make any progress toward a German peace treaty, the United States and Britain began to re-examine the American level of industry plan of 1946 with a view to making their combined zone more productive. According to the decisions which had been reached in March 1946 the industrial capacity retained by Germany was estimated to provide production equal to 55 per cent of 1938, or about 70-75 per cent of 1936. Under the new plan, formally announced by the British and American Military Governments on Aug. 29, sufficient industrial capacity should be retained in the Anglo-American zones to approximate the level of industry prevailing in Germany in 1936, a year characterized neither by boom nor depressed conditions. In steel production, the permitted level was raised from the 7,500,000 tons figure of March 1946, with actual production in any single year restricted to 5,800,000 tons, to 10,700,000 ingot tons. Comparable increases were also permitted in the manufacture of machinery, machine tools, automobiles, electrical equipment, and chemicals.

Realizing that the sharp increase in the permitted level of German industry might alarm the French, the United States and Britain invited France to attend discussions in London (Aug. 22-27) of their new plan. At these meetings the American and British representatives attempted to reassure France that their proposed measures for rehabilitating Germany would not be taken at the expense of the recovery and security of the democratic countries of Europe. These assurances were only partially successful, however, and French spokesmen made no secret of their disappointment over the outcome of the London talks. Among the several phases of the Anglo-American blueprint for German industry which France found particularly unsatisfactory was the proposed increase in machine tool manufacturing potential to a level greatly out of proportion to that possessed by France.

EUROPEAN RECOVERY PROGRAM LINKED TO GERMAN SETTLEMENT

The efforts of the United States to revise its policy toward Germany in the light of Europe's economic needs were continued at the London meeting of the Council of Foreign Ministers. Whereas the main objective of the United States in previous discussions on Germany had been the prompt unification of Germany, the chief goal of the new American approach as revealed at London was that of making Germany contribute to the rehabilitation of the Marshall Plan countries. For this reason, Secretary Marshall, while still hoping for German unity, refused to pay a price for it which in his opinion would jeopardize implementation of the European Recovery Program. Heading the list of the Soviet conditions which the United States rejected were the demand for $10,000,000 worth of reparations, the cession to Poland of all eastern German territory under Polish administration since the end of the war, and the establishment of a German régime prior to the negotiation of a peace treaty. Since the positions of Russia and the Western powers on all of these three points remained almost exactly the same as they had been at the Moscow meeting seven months before, the London session produced no agreement.

In a broadcast to the American public on Dec. 19, Secretary Marshall declared that further efforts toward peace would have to await implementation of the European Recovery Program. During the war, he declared, there had been created in Europe a political vacuum which had not yet been filled. Until this vacuum was filled by the restoration of a healthy European community, he reasoned, agreements on paper would not necessarily mean much. "Agreements between sovereign states," he stated, "are generally the reflection, and not the cause, of genuine settlements." At the close of 1947 the United States thus pinned its hopes for the conclusion of a German settlement which, in the phrase of Secretary Byrnes at Stuttgart in 1946, would make Germany "neither a pawn nor a partner," on the stabilization of Western Europe rather than on additional diplomatic negotiations by the Big Four Foreign Ministers.

THE UNITED STATES AND EUROPE

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U. S. EUROPEAN RECOVERY PROGRAM

The most important development in the United States foreign policy toward Europe during 1947 was the announcement of the American-sponsored European Recovery Program. This program embodied the decision of the United States to assume important responsibilities for the long-range economic reconstruction of the European continent with the view to filling the political vacuum created by the Second World War with a group of nations capable of protecting their independence against communist attacks at home or Russian pressure from abroad.

Several factors were responsible for this historic American decision. First, there was the obvious inability of Europe to recover from wartime destruction and disruption unless it received aid from more fortunate parts of the world. At the close of 1946, it had appeared that a number of European countries, including some of those which had suffered most seriously during the war, were safely on their way to industrial recovery. Although Germany, formerly the most highly industrialized nation on the continent, was at that time still below the half-way mark of its pre-war rate of industrial production, Italy had climbed to 70 per cent of its 1938 level; France, Belgium, and The Netherlands were within 80 to 90 per cent of this mark; and Great Britain and the Scandinavian nations were back at their pre-war levels or well above them. In achieving this degree of recovery, Europe had been greatly aided by the more than $4,000,000,000 in grants and $8,000,000,000 in loans and credits which the United States had extended to the nations of Europe since V-E Day for relief and rehabilitation. Convinced that this aid had been sufficient for the major tasks of post-war relief, Congress pressed for the abolition of UNRRA, the major international relief organ, on June 30, and passed an appropriation for $332,000,000 worth of post-UNRRA assistance to Greece, Italy, Austria, and Trieste (May 31).

In the meantime, Europe experienced the severe winter of 1946-47. Winter crops in almost all of the Western European countries were ruined by the severe freeze and spring floods that followed. Coal and other raw materials could not be mined in adequate amounts, and transportation was frequently slowed down or stopped altogether. Factories were forced to close either because people could not get to work or because motive power and raw materials were lacking. Thus the State Department in Washington began early in 1947 to receive information which indicated that the gains which Europe had already made toward recovery might yet be lost unless some way could be found to assist the European peoples in the months ahead. Under these conditions the United States Government re-appraised the entire problem of European recovery and concluded that the situation in Western Europe had entered a new phase and demanded a new approach.

The need for American aid to Europe appeared all the more urgent because of Britain's declining economic and military strength. At the close of the winter of 1946-47 the British found themselves in the throes of such a severe financial and economic crisis that they were obliged to liquidate a number of their overseas commitments. In doing so, they suddenly created power vacuums in a number of areas, notably in Greece and Turkey. Since Russia's influence continued to grow while Britain's power waned, it appeared to the United States that areas formerly within the British sphere of influence might fall under Soviet control if the United States failed to use its economic strength to prevent this development.

TRUMAN DOCTRINE AND AID TO GREECE AND TURKEY

The first avowed effort of the United States to contain Russia and prevent her from supplanting Britain in a particular area of Europe was made in the case of Greece and Turkey. In a special message to Congress on March 12, 1947, President Truman explained that Britain had announced on Feb. 24 that it would be unable to continue financial assistance to Greece after March 31, the end of the British fiscal year. Moreover, he continued, the British had declared that they would be obliged to reduce their military strength in Greece in the near future. Lest this virtual withdrawal by Britain from the eastern Mediterranean result in a Communist coup in Greece, where pre-war poverty was compounded by appalling wartime destruction, and an armed minority enjoyed the support of the pro-Soviet governments of Albania, Yugoslavia and Bulgaria, the President urged emergency American aid to the Greek government. Enunciating the broad principle which the press promptly christened the "Truman Doctrine," the President declared that "Totalitarian regimes imposed on free peoples undermine the foundations of international peace and hence the security of the United States."

To prevent a Communist coup in Greece, Mr. Truman proposed that Congress immediately appropriate $300,000,000 worth of aid to Greece. Half of this sum, according to original plans, was to be spent on strengthening the Greek army against Communist-led guerrillas, and half of it on the reconstruction of the civilian economy with a view to bolstering the non-Communist elements. In the case of Turkey, the President urged that $100,000,000 worth of exclusively military aid be extended to the authorities in Ankara in order to strengthen them against "outside pressure." This pressure, administration spokesmen subsequently explained, was being exerted by Russia for the purpose of securing special rights in the Dardanelles and acquiring certain territories in eastern Turkey.

After a debate which lasted until April 22 in the Senate and May 9 in the House of Representatives, the two houses of Congress passed the Greek-Turkish aid bill by votes of 67 to 23 and 287 to 107 respectively. Passage of the bill marked an important development in American foreign policy in that it constituted a frank acknowledgment that the United States opposed Russian expansion, whether conducted by the Kremlin itself or by local Communist parties. The Truman Doctrine as expressed in aid to Greece and Turkey was, however, an essentially negative policy designed to contain Russia in a strategic area. The more positive policy of strengthening the democratic forces of Europe in order to halt Soviet expansion was developed only at a later date.

ADMINISTRATION OF GREEK AID

In an effort to make the Greek aid program more effective than previous post-war foreign assistance of approximately $800,000,000 to the government in Athens had been, the United States bluntly insisted upon close supervision of its aid. In addition, Washington secured from the Greek government a promise to undertake a series of economic and social reforms and to consult American advisers before making any decisions concerning economic affairs which might affect the aid program. Among the major changes which the Greek authorities undertook to bring about in their notoriously inefficient and disrupted régime, were a revision of the taxation system, the adoption of stronger anti-inflationary measures, the conservation of foreign exchange, and the improvement of the civil service.

The American Mission for Aid to Greece, which was set up to administer the special assistance from the United States and to help Greece put its economic house in order, was headed by Dwight P. Griswold, former Republican Governor of Nebraska. The first contingent of the 100-member military section of this Mission was dispatched to Greece by May 23 to begin study of the requirements of the Greek army. Simultaneously the engineers, accountants, and other technicians needed in connection with the plans for civilian reconstruction were selected, and Griswold arrived in Athens on July 14 with the first group of civilian experts. The first installment of $35,000,000 worth of arms, ammunition, planes, and trucks, as well as food and clothing for the Greek army, arrived at the port of Piraeus Aug. 1. Despite the steady arrival of supplies after this date, however, the work of the Mission was seriously hampered both by events in Greece and along its northern frontiers.

Within Greece itself the Rightist régime led by the Populist Party stimulated civil strife by labeling any critics of government policies as "Communists" and by continuing corrupt administrative practices. Confronted with this situation, the Griswold Mission insisted on a reorganization of the government, and on Sept. 7 a coalition cabinet headed by the aged but widely respected Liberal, Themistocles Sophoulis, was formed. This cabinet, by offering a liberal political amnesty and by attacking the excessively high cost of living, attempted to attract all but confirmed Communists away from the guerrillas. However, the Sophoulis cabinet could not eradicate the inefficiency and corruption of the government overnight, particularly since it was obliged to cope with foreign-supported guerrillas. Despite both political and military efforts of the Greek government to stamp out the guerrillas, the Communist-led movement felt itself strong enough to announce Dec. 23 the formation of a "Free Government" in the guerrilla stronghold along Greece's northern frontier.

Efforts of the Greek government to secure United Nations action on its charges that Yugoslavia, Albania, and Bulgaria were aiding the guerrillas were frustrated by Russia's veto on action by the Security Council and the Soviet rejection of the Balkan Commission created by the General Assembly (see "United Nations"). As a result, the Greek rebels continued to count among their advantages a standing invitation from the Yugoslav, Albanian, and Bulgarian governments to cross their borders whenever they found it necessary to flee from the Greek regular army. From the point of view of the United States, the failure of the United Nations to seal off the Greek frontiers was a matter of great concern, for the program of American aid to Greece rested upon the assumption that the Greek army would be obliged to deal only with Communist-led bands within Greece itself.

ADMINISTRATION OF AID TO TURKEY

Administration of the Turkish aid measure was beset by fewer problems. After a 20-member American survey group, headed by Maj. Gen. Lunsford E. Oliver, investigated the needs of the Turkish armed forces during the summer, various kinds of American military equipment began to reach Turkey in considerable volume. Although the specific items supplied to Turkey under the program were not revealed because of considerations of security, the United States let it be known that approximately $90,000,000 would be spent in re-equipping the Turkish military, naval and air units; $5,000,000 on arsenals and repair facilities for motorized equipment; and $5,000,000 on road building and repairs.

NEED FOR LONG-TERM AID PROGRAM

Viewed in the broad perspective of Soviet-American relations during 1947, the Truman Doctrine as expressed in the emergency aid program for Greece and Turkey, constituted only a stop-gap device to halt the spread of communism until some long-term program for coping with Russian expansion could be evolved. Even at the very moment that the President went before Congress to request special assistance for the Greek and Turkish governments, he and his advisers were convinced that other countries would soon need similar help in withstanding Russian pressure. This impression was strengthened in the mind of Secretary of State George C. Marshall during the Moscow Conference (March 10-April 24), when the Big Four Foreign Ministers met for the first time to discuss treaties of peace for Germany and Austria. At this Conference, Secretary Marshall became convinced that the Russians were employing delaying tactics in the hope that they might reap a Communist harvest if Western Europe were unable to regain its economic strength quickly, but exactly what form of American help should be offered to Western Europe to help it withstand communism posed a difficult question. Not only were Europe's needs imperfectly known in Washington, but the majority of the Eightieth Congress was committed to the reduction of government expenditures. The Administration realized, therefore, that it would have to provide definite proofs of Europe's needs and a specific plan for American aid before asking Congress for any sizable appropriation.

THE MARSHALL PLAN

On June 5, Secretary Marshall, in a short speech delivered before a meeting of Harvard alumni in Cambridge, made an important suggestion as to the course American foreign policy toward post-war Europe should take. After discussing the serious situation facing the world and the more important reasons for Europe's difficulties, he turned toward the future and proposed a new approach to the problem of reconstruction and the role the United States could play in it.

Reduced to their essentials, the points Secretary Marshall made in his significant statement were: (1) Europe must have help from the United States during the next three or four years if it were to avoid complete collapse; (2) the United States should do whatever it could to prevent such a collapse because its consequences for this country would be very serious; (3) our policy in this crisis should be neither anti-Russian nor anti-Communist, but in favor of peace, prosperity, and freedom for all; (4) American aid should not be given piecemeal and on a spur-of-the-moment basis, but should aim at a general and permanent cure; (5) the United States would cooperate with any government that wanted to work for recovery, but it would oppose any government or group that sought to block recovery for its own ends; (6) the time had come for the nations of Europe to take the initiative in determining what they needed from the United States and what they could do to help themselves and each other; (7) the United States should offer friendly aid in the drafting of a joint program, by all the nations of Europe if possible, and then support it to the best of its ability.

In the first two of these seven points Secretary Marshall stated the problem created by the economic crisis in Europe and indicated the general approach which should be adopted in solving it. The next three were concerned with the relation of Russia to a European recovery program. In these points, Marshall veered away from the "stop Russia" aspects of the Truman Doctrine and held open the door to Soviet cooperation in recovery, provided always that Russia would not interfere with the program. Point six, that Europe must take the initiative, was the heart of what promptly became popularly known as the "Marshall Plan." According to Secretary Marshall's concept, only the Europeans themselves could bring about their own rehabilitation, regardless of how much aid the United States might give, and they should, therefore, set to work on this project if they expected the United States to assist them in doing the job. Point seven carried with it the assurance that, if the European nations, or most of them, came forward with a recovery plan in which they undertook a maximum of self-help, the United States would assume responsibility for offering all the aid it could to make the program successful.

RUSSIAN OPPOSITION TO THE MARSHALL PLAN

Secretary Marshall's speech of June 5 set off two related series of events, one in Europe and the other in the United States. France and Britain promptly welcomed the proposal, but both were obviously uneasy lest, in doing so, they enable Moscow to interpret their action as anti-Soviet. Their hesitation on this score was overcome, however, when the American Secretary of State told a press conference that he meant to include all of Europe west of Asia, specifically the British Isles and Russia. Thereupon British Foreign Minister Bevin flew to Paris on June 17 to consult with French Foreign Minister Bidault, and the following day the two men invited Soviet Foreign Minister Molotov to join them. After some delay, Russia accepted the Anglo-French invitation, and on June 27 M. Molotov arrived in Paris accompanied by a large delegation of experts. However, after only five meetings the Russian representative decided to leave the conference. The Soviet delegation insisted that the European nations should merely add up their requirements for aid and present this bill to the United States. Any other procedure, the Russian representatives maintained, would involve American intervention in Europe's domestic economic affairs. The French and British, on the other hand, maintained —in accord with Secretary Marshall's clear statement on this point—that Europe should first jointly construct a program of self-help, and they decided to proceed without Russia in calling a general European conference to formulate such a plan. As they were well aware, this action would broaden the gap between East and West, particularly since the Soviet Union refused to permit the governments of eastern Europe to accept the Anglo-French invitations to consider what response should be made to the American proposal.

FOUNDING OF THE COMINFORM

In a further effort to defeat the Marshall Plan, Communist representatives of nine European nations announced Oct. 6 that they had held a secret meeting in Poland and established a new Communist International Information Bureau with headquarters in Belgrade. This "Cominform" was generally viewed in the United States as representing the revival of the Comintern, which Stalin had formally dissolved in 1943 in a gesture of friendship toward the Western powers. Creation of the Cominform was thus believed to indicate a complete break on the part of the Communist parties of the member nations —the U.S.S.R., Poland, Hungary, Rumania, Yugoslavia, Bulgaria, Czechoslovakia, France and Italy—with their wartime policy of cooperation with the West. The strongly anti-American character of the Cominform was emphasized Oct. 22 when Col. Gen. Andrei A. Zhdanov, one of its founders and a member of the Russian Politburo, called upon the new organization to thwart the Marshall Plan as an instrument designed to achieve "world domination by American imperialism."

SIXTEEN NATION CONFERENCE (CEEC)

The 16 nations which accepted the Anglo-French invitation to a general European conference to consider a reply to Secretary Marshall's suggestion of June 5 were Austria, Belgium, Denmark, Eire, France, Great Britain, Greece, Iceland, Italy, Luxembourg, The Netherlands, Norway, Portugal, Sweden, Switzerland, and Turkey. Their total population of 270,000,000 (including western Germany, which was indirectly represented by the occupying powers) was approximately half the population of all Europe west of the Urals and roughly twice that of the United States.

Representatives of the 16 nations convened at Paris July 12, organized themselves into a "Committee of European Economic Cooperation" (CEEC), established four technical subcommittees to report by Sept. 1, and adjourned July 15. The four subcommittees considered problems of food and agriculture, fuel and power, iron and steel, and transport. Among the problems which beset the conference were those arising from uncertainty concerning the future of Germany and from the vagueness as to the amount of aid they might expect to receive from the United States. When unofficial reports began to reach Washington that the 16 nations' total requirements for outside aid might come to the sum of $29,200,000,000 over four years, the Administration was greatly disturbed because of its belief that there was little chance that Congress would approve such a large sum. Accordingly, the State Department hastily dispatched several officials to Paris to encourage the conference to reexamine its estimates with a view to paring them down. Moreover, Washington felt it was essential, not only to Congressional approval but to the success of European recovery plans, that there be specific provisions for cooperative efforts on the part of the European nations, and American officials accordingly encouraged more precise plans along this line.

EUROPE'S REPORT TO WASHINGTON

The general report of the Committee of European Economic Cooperation, a document of some 25,000 words and elaborate appendices of supporting data, was forwarded to President Truman Sept. 22. The report described the steps which the conferees would take themselves, individually and collectively, in behalf of economic recovery, and set forth estimates of the help they would need from abroad to put their program into effect.

As far as self-help and mutual cooperation were concerned, the 16 nations declared a three-fold intention. First, they undertook to expand their production of major commodities during the next four years in accordance with specified annual targets. The major commodities which they felt needed particularly close attention were food, coal, electric power, oil refining, steel, inland transport, and merchant shipping. The four-year production plan outlined in the report called for an increase in production on the same scale as that witnessed in the realm of industrial mobilization in the United States from 1940-44, and was admitted to constitute a high goal. American experts who subsequently analyzed the report generally concluded that the 16 nations had probably been over-optimistic in setting their aims for attainment by 1951. Second, the 16 European nations undertook to strengthen their internal financial stability in order to provide a sound foundation for maximum progress in recovery. In this section of the Paris report the CEEC nations pledged themselves to do whatever they could to exercise more control over their currencies, to curb inflation, and to balance their budgets. They felt obliged to observe, however, that the difficulties facing them in this connection were very great, and that in order to put a foundation under their currencies they would need a stabilization fund estimated at $3,000,000,000.

In another important section of the report, the CEEC nations agreed to cooperate more fully among themselves to increase trade and production through mutually helpful action. This section on mutual assistance among the CEEC nations was perhaps the most significant section of the Paris report. As was well-known at Paris the United States hoped that a plan for an all-European customs union might emerge from the conference, thus establishing a new and possibly fruitful approach to the problems of European recovery. However, the 16 nations' representatives felt that, while they approved this idea in theory and were willing to set up a special committee of their own to study it, an over-all customs union could be realized, if at all, only progressively, since a sudden removal of trade barriers would force many European producers out of business and produce economic chaos. In the meantime, they acknowledged their need to revive trade among themselves and the rest of the world by removing trade barriers as soon as possible.

After canvassing the possibilities for self-help the CEEC report went on to add that its signatories would need outside assistance if they were to regain their ability to support themselves. Under present conditions, they pointed out, this outside help would have to come mainly from the United States. Measured in billions of dollars at prices of July 1, 1947, the CEEC report showed the need for imports from the United States, from the other nations in the Western Hemisphere, and from the remainder of the world in the following amounts:

	U. S.	Other Western Hemisphere Countries	Other Parts of the World	Total
1948	$6.0	$3.2	$4.7	$13.9
1949	5.3	3.9	5.4	14.5
1950	4.8	3.8	5.9	14.5
1951	4.3	3.9	6.2	14.4

Under this schedule, import requirements from the United States would start out at a high figure in 1948 and drop gradually through the following three years until by 1951 Western Europe's import relations would be at least somewhat similar to those which prevailed during the pre-war period, when only approximately 45 per cent of western European imports came from the American continent, as compared with an estimated 75 per cent in 1948.

The goods which the CEEC hoped to obtain from the United States (in billions of dollars at July 1, 1947 prices) were:

	1948	1951	1948–51 Total
Food and fertilizer....	$1.5	$1.2	$5.4
Coal................	.3	.05	.7
Petroleum products...	.5	.55	2.2
Iron and steel........	.4	.3	1.2
Timber.............	.1	.1	.4
Equipment..........	1.1	.6	3.3
Other imports (mostly raw materials)......	2.1	1.5	7.2
Total..........	$6.	$4.3	$20.4

The CEEC countries declared that they expected to be able to pay for some part of what they needed from the United States and from other American republics through exports. In 1948, for example, they estimated that they would be able to export $850,000,000 of goods and services to the United States and $1,480,000,000 worth in 1951, thus reducing the deficit in that year to an estimated $2,620,000,000. In the meantime the four-year total western European deficit in balance of payments with the United States was figured at $15,810,000,000. This meant that the possible cost to the United States of American aid to European recovery under the Marshall Plan would be about $16,000,000,000, or about $28 a year per person in this country for four years.

ABILITY OF THE UNITED STATES TO AID EUROPE STUDIED

During the period from June until September, when Washington was awaiting the report of the 16-nation Committee for European Economic Cooperation, the United States was engaged in an examination of its capacity to underwrite a large program of aid to Europe. On June 22, President Truman announced the creation of three special inventory-taking groups. One made up of specialists within the government and headed by Secretary of the Interior

Krug, was asked to survey "the state of our national resources" in order to answer the question of whether the United States could export everything Europe needed without dangerously reducing this country's own supplies. This committee completed its work Oct. 7. It reported that the natural resources of the United States were sufficient to support a considerable foreign aid program without endangering this country's national security or standard of living. The second group consisted of President Truman's Council of Economic Advisers, under the chairmanship of Dr. Edwin C. Nourse. After analyzing "the impact on our national economy of aid to other countries," the Nourse group declared Oct. 28 that the American economy could "sustain the general impact of the foreign-aid program, providing we deal promptly and effectively with problems raised by key commodities," such as wheat, steel, certain items of industrial and agricultural machinery, coal, and fertilizer.

The third committee appointed by President Truman was a non-partisan group of 19 civilians—businessmen, lawyers, agricultural experts, labor leaders, economists, and administration experts—under the chairmanship of Secretary of Commerce Harriman. This Committee on Foreign Aid submitted a 125,000 word report Nov. 6. It studied the broad aspects of the aid program in order to advise the President "on the limits within which the United States may safely and wisely plan to extend such assistance." The general principles which the Harriman committee declared should govern American aid to Europe under the Marshall Plan were four in number. First, the report stated that the United States should help Europe to help itself through the development of its resources and the opening up of its channels of private trade and financing. Second, private capital should be encouraged to go to work in Europe. In addition to currency stabilization, the report explained, this meant the reduction of restrictions and regulations and a freer movement of men and money. Third, a clear distinction should be drawn in methods of financing and administration between emergency relief—the food and fuel program, which should diminish rapidly, and which might take the form of an outright gift of $3,000,000,000—and reconstruction. In the field of reconstruction, the report advised the United States to emphasize the use of more normal channels, to contemplate loans rather than grants, to use various existing international agencies to the full, and to use the resources of private enterprise. Finally, the report declared that the impact of the program on the United States must be cushioned. While the amounts involved in aid under the Marshall Plan might seem modest compared with total American resources, it stated, they were marginal amounts in the economic sense with respect to our foreign trade and the demands on our commodity markets. Under these conditions, the report concluded, the agencies charged with executing the program must adapt their operations from time to time to the condition of American markets and with regard to the essential need for economic stability in the United States as a keystone to world recovery. If these principles were followed rigorously and persistently the Harriman committee assured President Truman that the United States had the means to meet the critical needs of Europe.

STOP-GAP AID TO AUSTRIA, FRANCE, AND ITALY

With the acceptance of the Harriman report, the Truman Administration virtually completed its preliminary work on the European Recovery Program, as the Marshall Plan was formally called. Meanwhile, however, it had become clear in Washington that several European countries would suffer such hardships during the winter of 1947-48 that their democratic institutions might collapse before the Marshall Plan could be put into operation. At first the Administration hoped that sufficient stop-gap aid for these particularly needy countries could be secured from already existing funds, but this hope soon proved illusory, and the President concluded that a special session of Congress should be called to consider the need for interim aid and the related problem of growing inflation in the United States.

In the message which President Truman delivered in person to the opening meeting of the special session of Congress Nov. 17, he called for an immediate appropriation of $597,000,000 for winter relief to France, Italy, and Austria. This aid was essential, the President declared, if the economies of these countries were to survive the coming winter and their political and economic systems to escape disintegration. After a month's debate, Congress approved Dec. 20 an interim relief appropriation of $540,000,000 for France, Italy, Austria, and China.

On the same day that the interim aid measure was approved, and less than a week after the failure of the London session of the Council of Foreign Ministers to make any headway on a German settlement, President Truman sent Congress a completed outline of the proposed European Recovery Program. In presenting the ERP, which represented the work of thousands of experts on both sides of the Atlantic, the President declared: "The economic plight in which Europe now finds itself has intensified a political struggle between those who wish to remain free men living under the rule of law and those who would use economic distress as a pretext for the establishment of a totalitarian state." Although the ERP could not be thoroughly examined and discussed until the regular session of Congress convened Jan. 3, 1948, the President advised the legislators that he would seek an appropriation of $6,800,000,000 for the first 15 months and an authorization of $17,000,000,000 for a four-year period. Meanwhile, statements by various political leaders indicated that the forthcoming debate on the ERP would center around its cost, the terms under which American aid was offered, and the effect of the plan on the American economy.

OCCUPIED JAPAN

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THE UNITED STATES IN JAPAN AND KOREA

Throughout the year 1947 the United States continued as the Allied power chiefly responsible for the military government of Japan. In general, American policy followed the terms laid down in the Potsdam Proclamation and the "United States Initial Post-Surrender Policy for Japan" of 1945. That policy had two basic objectives: to preserve the predominant position of the United States, won in the Pacific war; and to meet the legitimate rights and interests of the other Allies. General of the Army Douglas MacArthur, in his capacity as Supreme Commander for the Allied Powers (SCAP), continued to exercise military and administrative authority in Japan.

Though the majority of the other Allies approved the initiative of the United States in the occupation of Japan, three of the members of the Allied Council in Tokyo, representing the British Commonwealth, China, and Russia, criticized specific failures from time to time. Both the British and Russian representatives stressed economic weaknesses in Japan's reconstruction; the Chinese member submitted questions on repatriation and demobilization. China's Premier Chang Chun, in a statement before the Kuomintang Central Executive Committee meeting in Nanking Sept. 9, opposed what he termed the American policy of fostering Japanese strength. At the British Commonwealth Conference on Japan which opened in Canberra, Australia, Aug. 26, the United States was invited to assume the initiative in negotiating a peace settlement, just as it had taken the leadership in the occupation. Russian dissatisfaction with American policy in the United States Zone of Germany was matched by criticism directed at the military government in Japan and American policy in southern Korea.

On May 3, 1947, Constitution Day, Japan became a parliamentary monarchy. On that day the new constitution, which was promulgated by the Emperor on Nov. 3, 1946, went into effect. Japan received the right again to fly the flag of the Rising Sun over public buildings. After Sept. 1, however, the Emperor's familiar chrysanthemum crest was no longer to be used on postage stamps.

A preliminary census taken Oct. 1 revealed that a total population, in round numbers, of 78,600,000 Japanese were crowded into an area less than the size of California; these people had become an increasingly heavy burden on the American taxpayer. Two years after her surrender, Japan reached a precarious economic balance that had been maintained and could be maintained for a long period only through constant material assistance from the United States. The unsettled reparations problem, the unfavorable trade balance to the extent of $200,000,000, and the unwieldy wage-price structure demanded government subsidies which increased inflation.

Japanese hopes for an end to the occupation were raised by the March 17 press conference in which General MacArthur advocated early negotiation toward a peace treaty. But official United States proposals for a preliminary conference in August were blocked, and at the end of the year Japan remained an occupied country. In May, the Supreme Commander announced that he intended to see the occupation through, regardless of its length.

The war-torn Ryukyu (Loochoo) Islands, including Okinawa, had been transferred from the U. S. Navy to the U. S. Army administration in July, 1946. The people, long dominated by the Japanese, enjoyed increased participation in their local government; but the Japanese revealed their intention to ask the return of the island group to Japan in the peace settlement. In July the Prefectural Assembly of Hokkaido, Japan's most northern island, petitioned General MacArthur to obtain the return of the Russian-occupied southern Kurile Islands.

Whereas the Japanese in 1947 began to react to Allied occupation like a liberated people, the Koreans reacted to military government like a conquered country. Korea continued divided between the United States and Soviet commands at 38° N. latitude. Despite further American efforts toward Koreanization of the administration of southern Korea, the failure of bilateral negotiations during the year finally forced submission of the question of the future of all Korea to the United Nations.

ALLIED POLICY CONTROLS

The legitimate rights and interests of the Allies in the policy of the occupation of Japan were expressed through the Far Eastern Commission, established by agreement at Moscow in 1945. With members representing 11 governments which participated in the war against Japan, the Commission met throughout 1947 in the former Imperial Japanese Embassy in Washington. Its chairman was Maj. Gen. Frank R. McCoy, the American member; its Secretary General was Nelson T. Johnson, former United States Ambassador to China.

The Commission was designed to be a policy-making body; it has continued to be, in fact, advisory. According to its Terms of Reference, military problems and territorial adjustments were excepted from its sphere of authority. It was to formulate policies, principles, and standards whereby Japan would fulfill obligations under the terms of surrender. The Commission could review directives issued by SCAP to the Japanese government. In the Commission's proceedings there was a veto provision, since no policy could be decided without the approval of a majority of its members including the United States, United Kingdom, U.S.S.R., and China. Finally the Commission had to respect existing control machinery including the American military chain of command.

Any member of the Commission might call for the review of any policy implemented in the occupation, and the year was an active one for the Far Eastern Commission. Important economic policies were defined, and the reparations problem moved slowly toward the settlement of shares of each country established on broad political principles. It was decided that Japan's new constitution should be reviewed for possible amendment. Attention was turned to educational reform. Most important, a basic policy to govern the occupation of Japan until the peace treaty is signed, was issued by the FEC. This statement in effect was an Allied ratification of the United States post-surrender policy statement sent by President Truman to General MacArthur on Sept. 6, 1945. In brief, it reiterated basic Allied objectives: to limit Japan's sovereignty to her principal islands; to disarm the country completely; to encourage the people to develop democratic ideas and organizations; and to reform basically the nature and direction of Japanese economic activity and institutions. Allied authority was to continue through the military occupation; the Emperor and Japanese state were to be subject to the Supreme Commander, who would use the existing form of government in carrying out the program.

Policy decisions originating in Washington then were of two types. The first type involved the following steps: (1) the FEC initiated or reviewed directives communicated through (2) the United States Government, the Joint Chiefs of Staff acting as a channel to (3) the Supreme Commander for the Allied Powers, who received advice from (4) the Allied Council for Japan, before transmitting directives to (5) the Imperial Japanese Government. The second type included directives prepared for SCAP by the United States Government, following the policy already laid down by the FEC; or concerning matters of an emergency nature, to be reviewed later by the Commission. Such limited interim directives were not to change constitutional structure or the Japanese government as a whole. Within the American Government, occupation policy originated in the State-Army-Navy-Air Force Coordinating Committee (SANACC), with advice from other departments including Commerce and Treasury. Such directives were transmitted by the Department of the Army as executive agency through the Joint Chiefs of Staff to SCAP. Ultimate authority for implementation and interpretation of all policy was, of course, in the hands of SCAP in Tokyo.

THE OCCUPATION

Within Japan the initials SCAP continued to stand for two functions. As Supreme Commander for the Allied Powers, General MacArthur was solely responsible for implementing Allied policy. In addition, SCAP was Headquarters for a military staff. HQ SCAP consisted of nine staff sections: Economic and Scientific, Civil Information and Education, Natural Resources, Government, Legal, Civil Intelligence, Public Health and Welfare, Civil Communications, and Statistical and Reports. Also attached to HQ was the International Military Tribunal for the Far East, including the United States section of the prosecution staff and prosecutors for the other Allies.

The Japanese Central Liaison Office (CLO), established in 1945, continued to accept commands and to route them to the Japanese administration for action. There was, of course, informal liaison between members of

SCAP at the staff level with the appropriate ministries in the Japanese government. SCAP no longer served as a channel for directives concerning Korean military government functions (see p. 114); it continued to exercise military command over troops in Korea.

Under GHQ SCAP, military government functions in Japan were exercised through military commands of the occupying forces, chiefly the American Eighth Army. There were about 5,000 British Commonwealth Occupation Forces based in southern Honshu and in Shikoku, but they had no direct military government functions. To these troops were assigned United States military government teams.

Attached to SCAP in Tokyo was a chief political adviser, a career diplomat. As deputy to the Supreme Commander, the political adviser served also as United States member of the Allied Council for Japan.

THE ALLIED COUNCIL FOR JAPAN

The Council continued as a four-power body available for consultation on-the-spot in Japan. It did not have the same broad scope of authority which was delegated to the Far Eastern Commission in Washington. During 1947, there was a complete change of representatives serving on the Allied Council. The United States, the Allies, and even Japan suffered a severe loss on Aug. 17 when the aircraft carrying George Atcheson, Jr., American member and Chairman of the Council, disappeared near Hawaii on a flight from Tokyo to Washington. Atcheson was succeeded by William J. Sebald, graduate of the United States Naval Academy and Foreign Service Officer. During the same week, W. MacMahon Ball, British Commonwealth representative, announced his resignation. He was replaced by Patrick Shaw. Lt. Gen. Kuzma Derevyanko, Soviet representative and critic of American policy, was relieved for a time by Maj. Gen. Kislenko. The new Chinese representative was Gen. Shang Cheng. Meetings of the Council continued to produce vitriolic debate. Important problems discussed included repatriation of Japanese to their homeland, the progress of economic reform and reconstruction, and basic educational reform.

THE NEW CONSTITUTION

From the surrender in 1945 to Nov. 3, 1946, the Japanese government had operated under the pre-war 1889 (Meiji) Constitution and had complied with Allied control through the old machinery of state. From the transition year of 1946, Japan moved during 1947 to a complete renovation of her organic law. The final draft of the new constitution, prepared after vigorous prodding by SCAP and proclaimed by the Emperor the previous November, went into effect on May 3, 1947. With all the pomp and ceremony of which the defeated country was capable, Japan legally renounced war forever and transferred the exercise of sovereignty from a "divine" emperor to the will of the people. A downpour of rain marred Tokyo's celebration of Constitution Day. The tone of Japanese press comment on the constitution was generally favorable and hopeful.

The new organic law followed closely constitutional principles approved by the Far Eastern Commission. The Japanese executive was to derive authority from and be responsible to the electorate through a representative legislative body. The ministers of state were to be collectively responsible to the legislature. The legislature was to have full financial power. The judiciary was to be independent. The Emperor, if retained as an institution by the expressed will of the Japanese, was to act on the advice of the Cabinet and was to have no independent executive power. On March 27, the Far Eastern Commission announced that it had directed General MacArthur to provide for a review of the new constitution by the Japanese people within one to two years. A referendum was made possible but not compulsory.

Within the new constitution a bill of rights guaranteed everything which the old constitution had assured to the people, but basic freedoms were no longer subject to legislative limitation. Throughout the year, the Diet implemented the new constitution by revisions of basic penal and administrative law. By midyear, occupation officials saw the end of Japan as a police state. Decentralization of the police system had progressed so far by Sept. 16 that the Japanese were granted permission to increase their police force. There were plans to abolish the Justice Minister and to create the post of Attorney General. A new criminal code abolished even the old *lèse majesté* law which provided up to 15 years' imprisonment for anyone guilty of disrespect toward the Emperor and his family.

THE EMPEROR

Certainly as a legal institution and apparently as a person, the Emperor became a limited monarch in Japan. Constitutionally his role was made minor: like the British king, he appoints the new premier, who is actually elected by the Diet; and dissolves the House of Representatives on the advice and approval of the Cabinet. During the two years of occupation as in the original surrender, the Emperor has occasionally acted also as a direct channel of command from SCAP to the Japanese government. Though the subjects of such interviews have usually been referred to as routine matters, Emperor Hirohito held his fifth conference with General MacArthur on Nov. 14. The Emperor continued to move about Japan and to be seen among the people. Significantly, in speeches of Aug. 7 and Dec. 7, he symbolized the Japanese people's memory of Hiroshima as a counterweight to America's memory of Pearl Harbor.

At home, the Emperor shared to some extent the hardships of his people. In their first joint press conference on June 3, the Emperor and Empress described their food as the same that was granted other Japanese under the rationing system. The Emperor could not order a new suit. During the year, the part-time tutor of Crown Prince Akihito (Mrs. Elizabeth Gray Vining) briefly returned to the United States and described the progress of her pupil's schooling.

JAPAN'S NEW GOVERNMENT

Under the new constitution, the independent judiciary is granted the power of constitutional review much like the American system. Members of the court are appointed by the Cabinet and invested by the Emperor. The Government named 15 justices during the first week in August. Unlike the United States Supreme Court, however, Japan's highest judicial tribunal will serve until the next general election when the voters have the privilege of recall.

In the executive branch, one of the most radical changes from the previous structure was the final abolition on Oct. 8 of the once powerful Japanese War and Navy ministries. First converted into demobilization ministries after the surrender, then further reduced to bureaus in 1946, their remaining functions were transferred to the government's Welfare Ministry.

The year 1947 was an election year in Japan. Voters went to the polls to select their representatives at all levels of government. Provincial governors and city mayors were popularly elected for the first time in Japan; an elected upper House of Councillors replaced the old House of Peers; and a new House of Representatives reflected post-surrender party lineups which in turn produced a new coalition cabinet.

THE NATIONAL ELECTIONS

Japan entered the year 1947 with its fourth government since the surrender, the cabinet of Premier Shigeru Yoshida. In January, the pressure of political parties and the possibility of further political purges already threatened the Yoshida administration. A mass resignation was temporarily warded off by dropping three members of the Cabinet, dismissing the head of the Economic Stabilization Board, and reshuffling the remaining ministers. Nevertheless, a nationwide poll by the newspaper *Asahi* in early February revealed that almost 50 per cent of the Japanese people opposed the government of Yoshida and were swinging to support the rising Socialist party. On Feb. 7, General MacArthur directed the Japanese government to hold general elections "as soon as practicable." On March 31, the ninety-second Japanese Diet and last under the old Meiji Constitution, dissolved. The old House of Peers closed forever.

The local elections of April 5 opened a month of intense political activity in Japan. They also marked the first time the Japanese people elected, by a democratic process, governors for their 46 prefectures, and mayors for their five largest cities. This first test of strength seemed to indicate a sweep by independents running without party labels but generally in support of the Yoshida government. Only about one per cent of the votes cast in mayoralty elections went to the Communists.

The election of the House of Councillors, April 20, though less important than that of the Representatives, still attracted a larger number of national figures than the earlier local elections. It was estimated that more than one-third of the electorate abstained from voting. In this test, independent, moderate conservatives again seemed successful, though the largest number of seats won by a single party went to the Socialists. The climax of the political campaign came with the elections of April 25 for the lower House of Representatives. Political observers estimated that about as many votes were cast as in the election of April 1946. The Japanese watched the outcome with interest for, in all likelihood, from among successful candidates elected for four years would come the government which would sign a peace treaty with the Allies. With elections for prefectural councils on April 30 and runoffs completed, Japan had a new government when the constitution went into effect in May.

THE NEW DIET

Japanese political parties, though they had failed as parties to continue during the war, inherited a parliamentary tradition which survived the repression of reactionary wartime premiers. In general, the Liberals and Democrats represented conservative elements. The Socialists, weakened by party splits, and the People's Cooperatives held the middle Left. Communists appealed to organized labor and the extreme Left. There was no organized extreme Right. As of the elections of April 20, the political affiliations of the 250 members of the House of Councillors were as follows: Socialists, 46; Liberals, 39; Democrats, 32; People's Cooperatives, 10; Communists, 4; minor parties, 7; independents, 112. On May 21, the upper house selected as President Tsuneo Matsudaira, former ambassador to Washington.

In the lower house, as of the election of April 25, party strength was consolidated, and there was a reduction of minor party participation. Three major parties emerged almost equal in strength, necessitating a tenuous coalition Cabinet. The House of Representatives was then composed of: Socialists, 143; Liberals, 132; Democrats, 126; People's Cooperatives, 31; Communists, 4; minor parties, 17; independents, 13. In comparison with the 1946 results, the rise of the Socialists was the most significant change. Yet, conservative forces, represented by Liberals and Democrats, continued to hold between them a majority of the House and even to increase their combined membership over 1946. Women won only 15 seats in the new election, as compared with 39 in 1946.

Though the Emperor Hirohito convoked the new Diet for May 20, delays caused by selection of a new Cabinet meant that the legislature did not actually get down to work until July. Nevertheless, in 1947, the

Diet sat through 204 days, the longest session in Japanese parliamentary history.

THE NEW CABINET

For a time after the national elections of April, the Yoshida Cabinet delayed resignation because the Premier's Liberal party, combined with the affiliated Democrats, held the majority. Through May, the four leading parties negotiated on policy and finally decided upon a new Premier. On May 23, Tetsu Katayama—Socialist, Christian, pre-war labor lawyer—was elected by the Diet to serve as the first premier under the new constitution. The entire process took 41 days from the election as compared with 42 days required to select a leader the previous year. The Cabinet installed on June 1, with subsequent changes, was as follows:

Foreign Minister: Hitoshi Ashida (Dem.); Home Minister: Kozaemon Kimura (Dem.; Ministry abolished Dec. 31, 1947); Finance: Shotaro Yano (Dem., replaced in June by) Takeo Kurusu (Dem.); Justice: Yoshio Suzuki (Soc.); Education: Tatsuo Morito (Soc.); Welfare: Sadakichi Hitotsumatsu (Dem.); Agriculture: Rikizo Hirano (Soc., purged in Dec., 1947; replaced by) Kanae Hatano (Soc.); Transportation: Gizo Tomabechi (Dem., replaced in Dec. by) Tokutaro Kitamura (Dem.); Communications: Takeo Miki (P.C.); Labor: Mitsusuke Yonekubo (Soc., Ministry established in Sept.); Ministers Without Portfolio: Suehiro Nishio (Soc., concurrent Chief Cabinet Secretary); Hiroo Wada (ind., concurrent Director-General, Economic Stabilization Board); Junzo Sasamori (P.C.); Takao Saito (Dem.); Giichi Takeda (Dem., appointed in Dec.); Heima Hayashi (purged).

One of the first steps the Katayama Cabinet took was to introduce a draft of a new civil service law affecting 2,000.000 government employees, many of whom constituted a stumbling block in the path of democratization. Plans were also discussed to reduce the number of Japan's splinter parties in the Diet. But the issues which mainly endangered the Cabinet's leadership were economic. Measures to increase coal production brought labor opposition; the conservatives mustered their strength against even a watered-down coal nationalization bill; and government workers assailed the government wage ceilings. By the end of the year, the lineup in the House of Representatives had shifted; the Socialists lost 15 seats, 12 to the new Hirano Faction; the Liberals and Democrats lost 32 seats, 22 to a new group led by former Premier Yoshida. The trend was conservative, but the opposition was still split. In the upper house, the Socialists held their own as did the Liberals; but the Democrats jumped to second place with 46 seats, and a group of independents, the new Ryokufukai, appeared. The Communist Line, incidentally, swung from "socialist revolution" to completion of the "bourgeois revolution."

DEMOCRATIZATION

War crimes trials of former Premier Hideki Tojo and the other major Japanese wartime leaders before the International Military Tribunal, ground on through the defense arguments. For a time in October, the testimony of Marquis Kido (former Lord Keeper of the Privy Seal) threatened to embarrass the position of the Emperor himself. But the arrogant defense of General Tojo and the unwillingness of the prosecution to involve the Throne postponed further challenge to the Imperial position. Though the Socialist Cabinet dropped Rikizo Hirano as Agriculture Minister, the Central Screening Committee for the first time defied the Government Section of SCAP in refusing to purge Hirano.

In the field of educational reform, the Far Eastern Commission in April directed SCAP to commence widespread decentralization of the Japanese school system, to encourage the publication of progressive textbooks, and to make available foreign books to libraries and teachers. In November, the Chinese member of the Allied Council led a unanimous attack on the lack of educational progress under the occupation.

In the field of religion, Japanese Buddhism suffered from schisms among a growing number of sects. Sectarian Shinto seemed to be registering spectacular gains. Christianity and foreign missions in Japan were severely hampered in their work by the official rate of conversion between the dollar and the yen.

GENERAL ECONOMIC CONDITIONS

In contrast to the legal progress of Japan toward parliamentary democracy, the economic reconstruction of the country faced tremendous obstacles. On April 18, the FEC established the principle that the peaceful needs of the Japanese people could be defined as a standard of living prevailing in 1930-34.

Certain key statistics released by SCAP at the end of the year proved that such a standard was only a distant goal. With 1930-34 as a base year (100 in the index), over-all industrial production had risen from a low of 31.8 in 1946 to only 41.3 in June and to 42.6 in October 1947. Mining activity had risen to an index of 90.6 by October, but manufacturing rose from 26.6 in 1946 to only 35.2 by October 1947. Japan, which produced about 100,000 metric tons of pig iron and twice that amount of crude steel in an average month during the years 1930-34, had a monthly total of about 30,000 tons of pig and 94,000 tons of steel in October 1947.

Coal was a critical economic and political item during 1947. The Japanese mined 2,500,000 tons in October; yet General MacArthur informed Premier Katayama in September that Japan must guarantee a production of 50,000,000 tons a year. This figure was reached during the war years, but is far in excess of 1930-34 average production. Two bright spots appeared in the production indices: ammonium sulphate, used as fertilizer, was produced at the rate of 60,000 metric tons, monthly total in October (22,000 to 41,000 monthly average, 1930-34); and electric energy generation topped 3,000,000,000 kilowatt hours monthly total in July (about 1,500,000,000 kwh, 1930-34).

Prices and wages, the supply of food, and the unsolved reparations tangle continued to plague the Japanese economy. A glance at the consumer price index demonstrates what was happening in the first category. SCAP figures for the expenditures of 5,000 urban families in 28 representative cities took the period August 1946-March 1947 as a base (100). By March 1947, the index reached 137.7; by May, it was up to 166.8; and, in July, it hit a peak of 227.7. The figure for Tokyo alone in August was 239.3.

The Katayama Cabinet staked its future on the control of Japan's tottering economy. In a so-called White Paper of June, the government pledged an attack on the black market, wage controls, abolition of producers' subsidies, revamping of the allocation system for raw materials, and budget revision. Despite valiant efforts, the Cabinet was forced to make a general adjustment upwards in official prices to 65 times the 1934-36 base level. A gradual retreat from the standard wage of 1,800-yen per month resulted in a year-end three months' bonus to government workers, and, finally, abandonment of the standard wage. Private employers were paying an estimated monthly average of 2,800 yen (about $56 at the official conversion rate).

FOOD

On March 28, the Supreme Commander wrote to the Japanese Premier that future imports of food from the United States would be calculated on Japan's maximization of domestic supplies and their equitable distribution. The Economic Stabilization Board set a goal of 2,100 calories daily as an average diet. The government ration provided about 1,246 calories; even with the black market, the national average was guessed to be about 1,750 calories. It was officially estimated that Japan's shortage in domestic food production for the year amounted to about 2,000,000 tons, roughly equal to what was imported largely in the form of American cereals.

Soviet and American representatives on the Allied Council agreed on a plan for democratization of Japanese inshore fishing administration. Both Britain and Australia, however, criticized General MacArthur's decision to permit the Japanese to conduct whaling expeditions in the Antarctic. Sea foods continued to be an important item in Japan's food supply.

LAND, LABOR, AND CAPITAL

Progress of the program of land reform, under the law passed in September 1946, came in for criticism, particularly by the Soviet member of the Allied Council. Many of the local committees selected to underwrite the purchase of land for individual families were found to be unsatisfactory. During the year, the Government passed an Agricultural Cooperative Association Law designed to remove rural groups from state domination.

The effect of General MacArthur's order of Jan. 31, 1947 canceling a threatened general strike of civilian employees of the government, was to bring a strike holiday generally throughout organized labor during the year. The National Congress of Industrial Unions (NCIU) ordered its militant Youth Action Corps disbanded in March. By October, spokesmen for the leading labor federations promised that strikes would be used only as a last resort. Nevertheless, post-war Japanese labor organizations were a powerful influence; mid-year figures showed there were over 20,000 unions with over 5,000,000 members. The NCIU, patterned on the American CIO, counted 1,300,000 members.

Reform of the Japanese capital structure proceeded under the encouragement of SCAP. Final dissolution of the giant Zaibatsu (Financial Trusts) was accomplished. At the close of the year, the Diet passed three sets of laws amending the 1946 ordinance for the Holding Company Liquidation Commission; liquidating undue concentration of capital; and further regulating family affiliations in former Zaibatsu concerns. Kodan (Public Corporation) emergency measures provided transition from wartime Control Associations to peacetime economic rehabilitation. The 1947 finance law established an income tax on a pay-as-you-go, self-assessment basis, new to Japan.

REPARATIONS AND FOREIGN TRADE

The United States pressed for a speedy decision by the Far Eastern Commission on the problem of reparations. A policy statement by the FEC, dated May 8, ruled that reparations would be distributed among the Allies according to destruction incurred by Japanese aggression; and decided that removals would come out of both capital equipment and current production. But agreement on details was limited to interim removals, the criteria for plant selection, and the "broad political basis" of each country's shares. Meanwhile, impatient American officials seemed to be taking what they called a more realistic view of reparations. A modification of the original Pauley proposals was recommended in the less severe plan of an industrial mission headed by Clifford Strike, president of the F. H. McGraw Company. Meanwhile, advance transfers of reparations were begun, according to an interim policy established April 3.

From the Japanese view, the still confused reparations situation was balanced by the first post-war permit to engage in limited foreign trade. In 1946, the Far Eastern Commission had approved the establishment of the Inter-Allied Trade Board for Japan, an advisory body made up of representatives of the 11 Commission members. The Board met throughout the year in Washington, advised

SCAP on the disposition of exports from Japan, the choice of imports to Japan, and the reopening of private trade. On Aug. 15, a decision was reached whereby 400 Allied Trade Representatives were permitted to enter Japan. The American quota was 102. Finally, the Commission made possible the use of Japanese liquid assets in gold, silver, and jewels as a credit base to facilitate the import of raw materials. General MacArthur set up a revolving fund with initial assets of $137,000,000, but it had not yet been put to use at the end of the year. There was still no official rate of exchange set for the yen; a trade rate varied from commodity to commodity. The official conversion rate was altered from 15-1 to 50-1, yen to dollar.

PEACE TREATY

In several interviews during the year, especially the press conference of March 17, General MacArthur left no doubts as to his desire for negotiations leading to an end of the occupation, a peace treaty, and eventual supervision of Japan by the United Nations. Lake Success was generally cool to the latter proposal. On July 11, the United States proposed to the other Allies a preliminary conference of representatives of Far Eastern Commission members, held outside the FEC. The initial groundwork for a treaty would be prepared by deputies and experts, with a simple two-thirds majority ruling. The draft would then be approved by the Foreign Ministers of the 11 countries and submitted to all states at war with Japan.

All the countries approached by the United States, except the Soviet Union, approved the idea of a conference, though the British Commonwealth objected to the suggested date which conflicted with the Canberra meetings. Eight countries approved the voting procedure. The U.S.S.R. countered with a demand that the draft must first be approved by the United States, the Soviet Union, the United Kingdom, and China, represented in a Council of Foreign Ministers. The United States and the British Commonwealth in August rejected the veto procedure implied in the Soviet demand. China offered a compromise whereby the preliminary meeting would vote according to Far Eastern Commission procedure: a majority including the four main powers. Because of the Sino-Soviet Treaty of 1945, China hesitated to enter into separate negotiations with Japan without Russian approval. At the end of the year, the preliminary conference was yet to be summoned.

KOREA AND THE UN

Throughout the year, the United States continued to have responsibility for the military government of Korea south of 38° N. latitude. After July 1947, all directives pertaining to civil affairs and military government in South Korea flowed direct from the Joint Chiefs of Staff to Lt. Gen. John R. Hodge. Thus American policy for South Korea was developed in (1) the State-Army-Navy-Air Coordinating Committee (SANACC) and transmitted by the Army to (2) the Joint Chiefs of Staff, who prepared directives for (3) the Commanding General, U. S. Army Forces in Korea (CG USAFIK, General Hodge) who passed them on to (4) the U. S. Army Military Government in Korea (USAMGIK, Maj. Gen. William F. Dean). Under USAMGIK the Korean Interim Legislative Assembly (KILA), established in December 1946, continued to sit through the year with 45 elected and 45 appointed Korean delegates. By May 1947, the process of Koreanization had progressed to the stage where the administration was referred to as the South Korean Interim Government (SKIG). Meanwhile, contact with Russian-occupied North Korea was restricted to some exchange of electric power and a fair amount of black market smuggling.

On the assumption that there was some basis of agreement between the military governments of the two zones, the Joint Commission was reconvened in May, but final breakdown of bilateral negotiations came in September. Secretary of State Marshall determined to refer the whole problem of Korea to the UN Assembly, which put the question on its agenda on Sept. 23. The Soviet Union countered on Sept. 26 with a proposal for joint withdrawal of Russian and American troops from Korea. On Nov. 13, the General Assembly, by a vote of 43-0 and despite Soviet threats of a boycott, agreed to establish a commission to supervise elections in Korea and to help set up a provisional government.

THE UNITED STATES AND LATIN AMERICA

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HEMISPHERE DEFENSE

As the year 1947 opened the United States was faced with a number of major problems in the relations with Latin America. The principal question related to defense of the Western Hemisphere. The Act of Chapultepec signed at the Conference at Mexico City in 1945 needed implementation, and provision had been made to render the act effective by a conference on military cooperation to be held later in the year in Rio de Janeiro. However, owing to the recalcitrant attitude of Argentina, no conference has been held.

COMMUNISM AND TRADE

Another serious problem was the progress of Communism in Latin America. As relations with the Soviet Union steadily deteriorated, it became increasingly necessary to prevent infiltration of the Communistic doctrine in the Latin American republics. Mexico, Argentina, and Chile seemed to be focal points of the advance and these were all vital areas in any program for continental defense.

A third important problem concerned commerce and finance. Latin America, like all other parts of the world, had suffered a diminution of trade and industry with the end of the war, and, this coupled with inflation in costs of commodities, particularly in such basic requirements as food and shelter, furnished a fertile field for the propagation of the Communist dogma. Such a problem, although its implications were clearly international, nevertheless, in its immediate import, was national and as such could cause serious embarrassment to any third state which dared to interfere.

Even the machinery which was used to conduct relations with Latin America was not functioning smoothly. Spruille Braden, Assistant Secretary of State in charge of Latin American affairs, had antagonized certain business interests which possessed important senatorial support so that President Truman and Secretary of State Byrnes were in somewhat of a quandary as to just how far they could support the intransigence of Braden in his hostile attitude towards Argentina. The sudden resignation of Secretary of State Byrnes and the succession of General Marshall, whose interests have been centered largely in Europe and the Far East, did not help the situation.

RELATIONS WITH ARGENTINA

The first problem to be solved before any move towards hemispheric defense was possible required a better relationship with Argentina. The able career ambassador, George S. Messersmith, had been sent to Argentina to work out a suitable arrangement with the Peron Government, but Spruille Braden still remained Assistant Secretary of State in charge of Latin American affairs. Messersmith returned to Washington at the end of 1946 and reported that Argentina was making a real effort to eradicate Nazis and Nazi influences. Shortly after he went back to Buenos Aires, Messersmith was able to report that some 60 important German firms, including Bayer Chemical Co. and the electrical engineering establishment of Siemens-Schuckert, had been taken over by the Government. The assets of these establishments were valued at about $100,000,000. On Jan. 25, 1947, the Department of State approved this "welcome addition to the measures already taken in respect of Nazi education and other institutions."

Unquestionably Messersmith's policy of the velvet glove was succeeding, but, with the advent of a new Secretary of State, the influences supporting Braden, headed by Under Secretary of State Dean Acheson, finally forced the resignation of Messersmith. However, Secretary Marshall wanted above all an inter-American treaty of mutual assistance, so Braden's resignation also was arranged, and the new ambassador, James Bruce, a purely political appointee, was instructed to carry out the policy of cooperation with the Peron régime. Early in June an announcement by President Truman that Argentina had fulfilled the obligations which it had accepted at the Conference of Chapultepec made it clear that the United States felt ready to proceed with the conference for continental security.

Meanwhile President Truman urged Congress to pass the Inter-American Military Cooperation Act which was designed to bring about standardization of military equipment and training in all the republics of the Western Hemisphere. Under the provisions of this bill, the President is authorized to transfer equipment in the amount he deems suitable to those Latin American countries requesting it. In return, he may accept in full or partial payment the arms and equipment of European origin which the countries have hitherto been using. The bill further permits the maintenance of United States military and naval training missions in the Latin American states and also to bring officers from those countries for advanced training in the United States. The principal advantages of the bill were twofold: Latin American countries would better protect themselves against a European attack and it would eliminate the European military missions so prevalent in Latin America before the Second World War.

When Congress failed to pass the law for Inter-American Military Cooperation, the Departments of War and Navy went ahead with the approval of Secretary of State Marshall and furnished large amounts of surplus military equipment including fighters, bombers, and armored cars to all of the Latin American republics except Argentina, Dominican Republic, Honduras, and Nicaragua. Although the sales value as surplus was only $5,000,000, the original cost was over $37,000,000. This, added to the $400,000,000 worth of combat supplies furnished under lend-lease distribution during the war, was a good start upon the program advocated by the administration.

INTER-AMERICAN CONFERENCE OF FOREIGN MINISTERS

The Foreign Ministers of the American Republics designated Aug. 15, 1947 as the date for the conference to negotiate the treaty for mutual defense recommended by the Act of Chapultepec. The place selected was the Hotel Quintadinha (little fruit stand) near Petropolis about 50 miles from Rio de Janeiro. The importance attached to this conference by the United States was shown by the fact that President Truman agreed to address the closing session. The United States delegation headed by Secretary of State Marshall included Senator Vandenberg, Chairman of the Senate Committee on Foreign Relations, Senator Connolly, ranking Democratic member of the Committee, and Warren R. Austin, United States representative to the United Nations. All of the Latin American Republics were represented at the conference except Nicaragua whose government, set up by a military coup by former President Somoza, had not been recognized. Over 250 delegates and advisors from 20 American republics attended the conference.

The Cuban delegation to the conference made a vigorous effort to include hemispheric economic problems but the steering committee decided to limit discussions to drafting the treaty of mutual defense. However, it was agreed that Pan-American economic problems should be considered at a special conference later in 1947 or be reserved for the regular Inter-American Conference scheduled for Bogota in 1948. Nevertheless, the Mexican Foreign Minister, Jaime Torres Bodet, received an ovation when, on the first day of the conference, he declared that "one of the deepest yearnings of this continent is to develop the economic cooperation of our countries so that many of them shall not become merely armored invalids iron-clad for emergencies, but communities strong through production and the equitable exploitation of their resources."

Approximately 150 proposals for the treaty provisions were submitted, in addition to the numerous amendments and changes suggested during the conference. The Argentine proposal provided for force against aggressors from outside this hemisphere, but only pacific means were to be used against aggressors from within. The United States insisted strongly that all aggressors should be met by force if necessary, and Argentina finally withdrew from her position. Limited to but one subject, this conference completed its work in less than three weeks, closing Sept. 2. President Truman addressed the conference briefly during the last week of the sessions and explained why Europe took precedence over Latin America in financial assistance from the United States at the present time. The conference was an unqualified success, and the treaty which resulted from it in the words of Ambassador Austin "strengthened the spiritual bonds between these neighboring countries by formalizing them in the letter of a great covenant."

INTER-AMERICAN TREATY OF RECIPROCAL ASSISTANCE

The Treaty of Reciprocal Assistance signed at Rio de Janeiro Sept. 2, 1947 consisted of a lengthy preamble and 26 short articles. A reservation was attached to the treaty by Honduras as regards aggression across the boundary established between Honduras and Nicaragua. The basic provision of the preamble states that "the obligation of mutual assistance and common defense of the American Republics is essentially related to their democratic ideals and to their will to cooperate permanently in the fulfilment . . . of a policy of peace." Articles 1 and 2 condemn war and provide for the submission of all disputes to peaceful settlement by procedures in force in this Inter-American System before referring them to the United Nations. Articles 3 through 5 provide that an attack against any American state is an attack against all, and each undertakes to assist the state attacked individually and collectively until the Security Council of the United Nations takes measures to maintain security. Article 6 permits the Organ of Consultation to act in any situation which might threaten the peace of the Americas, and Article 7 prescribes the procedure for peaceful settlement in case of a conflict between two or more American states. Article 8 prescribes the sanctions which may be employed beginning with suspension of diplomatic relations and ending with the use of force, and Article 9 defines aggression as unprovoked attacks or armed invasion. Articles 10 through 16 provide that no provisions of the treaty impair obligations under the United Nations Charter and give the Conference of Ministers and the Governing Board of the Pan American Union jurisdiction over consultation procedure. Articles 17 and 18 require the Organ of Consultation to decide by a two-thirds majority excluding the parties directly interested. The remaining articles govern procedure in meetings and make the treaty binding after two-thirds of the signatory states have ratified it.

The Treaty goes even further than the Act of Chapultepec in its provisions to safeguard the security of the Western Hemisphere in as much as it makes a distinction between various forms of aggression. The power to act upon a two-thirds vote is a long step forward in making international cooperation effective. The Treaty is wholly consistent with the Charter of the United Nations and harmonizes with regional and world security systems. All of the 20 republics represented at Rio signed except Ecuador whose government was overthrown during the conference. Secretary Marshall, speaking on Sept. 4, suggested that "the successful formulation of this regional treaty affords the United Nations an example . . . of which it is in great need at this time," and Senator Vandenberg noted on the same day that "there is no paralyzing veto upon any of these peaceful sanctions."

PROPOSED MARSHALL PLAN FOR LATIN AMERICA

One reason for the desire of the Latin American states to bring financial and economic questions before the Rio Conference was the dollar shortage which was slowing down their foreign trade. All Latin American countries needed the products of United States industry, farm machinery and business machines particularly. In the first three months of 1947, Latin America purchased goods valued at almost $1,000,000,000 as against less than $500,000,000 in all 1938, but as dollars became scarcer and prices in the United States rose Latin Americans could purchase less. The Marshall Plan, which looked entirely towards Europe, betokened an even more serious situation for Latin America. A certain degree of resentment was felt at the apparent intention of the United States to channel its equipment, particularly factory machinery and farm implements, to Europe instead of southward. United States investments of private capital were on the increase, particularly in the development of natural resources such as oil in Venezuela, but the Latin Americans preferred the lend-lease method or Export Import Bank Loans which permitted national control in developing their industries.

As evidence of this trend, Colombia proposed that the United States formulate a "Little Marshall Plan" for Latin America whereby the United States Government would lend $5,000,000,000 to a corporation in which all of the 21 American republics would be represented. The primary purpose of this agency would be to lend money for projects which would increase production in Latin America. According to the Colombian statesman, Dr. Eduardo Santos, what the peoples of Latin America needed was not "cannon and tanks, large dangerous armies and war planes but education, health, and well being, and the opportunity to struggle for existence."

A concrete illustration of the crying need for capital is seen in the Mexican government oil monopoly. The Mexican oil fields, which once produced almost 200,000,000 barrels annually, have averaged under 50,000,000 barrels since the government took over in 1939. The industry needs to explore for new fields, it must build new refineries and pipe lines, and it must renovate its whole organization. Over $300,000,000 are needed, and after its previous experience foreign private capital is hesitant to enter. The Export Import Bank will probably help some as will also the International Bank, but to do all that is required a Marshall Plan would be the best solution from the Latin American point of view.

THE MENACE OF COMMUNISM

The spread of Communism in Latin America in the early part of 1947 was a very serious threat both to the maintenance of the Good Neighbor Policy and to the development of an effective program for continental security. In Mexico, Vincente Lombardo Toledano, head of the Confederation of Latin American workers, although he claimed not to be a Communist, hewed closely to the party line. In Cuba, Communist Lázaro Peña dominated the Confederation of Labor and Senator Juan Marinello was president of the Communist Party. In Chile, Leftist President Gabriel Gonzalez Videla, elected with the aid of the Communists, gave three posts in his Cabinet to members of the Communist Party. In Brazil, Luis Carlos Prestes claimed 130,000 Communist followers, one-tenth of the total voting strength of the country. The watchword of all these Communist elements was "Abajo Yanqui Imperialismo."

Chile took the lead in meeting the menace head on. Simultaneously with the reestablishment of the Comintern or Cominform in Poland early in October, a serious strike took place in the coal mines of Chile. President Videla had been suspicious of the Communists and had put his secret police on the trail of the Yugoslav diplomats, the suspected ring leaders. Claiming that the Reds were menacing the continental defense policy, Videla expelled the Yugoslav diplomats, broke off diplomatic relations with Yugoslavia, and followed this by severing relations with Russia and Czechoslovakia. Communists were rounded up, their newspaper suspended, and Videla threatened to outlaw the party.

Brazil acted with equal speed and effectiveness. President Dutra, in the spring of 1947, had outlawed the Communist Party. When, early in October, the Russian newspaper *Izvestia* made certain slurring remarks on Dutra and when the Soviet Foreign Office did not deign to answer the demand for an apology, the Brazilian Foreign Minister brusquely handed his passports to the Russian ambassador and severed diplomatic relations. The Department of State and United States investors looked with sympathetic eyes at the gradual weakening of the power of the Communists with the hoped for possibility that Argentina might soon follow along the same path.

INFECTED CATTLE CRISIS IN MEXICO

The United States has become seriously alarmed at the rapid spread of the hoof and mouth disease in the livestock herds in Mexico. If not brought under control, it is a very serious threat to the vast cattle herds of the United States in Texas. Although at present the infected areas are in south central Mexico—it began in the province of Vera Cruz—it has spread as far west as the Federal District and as far north as Aguascalientes. The infected area includes about 2,000,000 head of cattle, 30 per cent of all cattle in Mexico, 1,400,000 sheep, 43 per cent of the sheep, and equivalent numbers of hogs and goats. The United States Government has spent about $35,000,000 in aiding the Mexican Government to slaughter the cattle and bury them in lime pits.

The Mexican farmers have resented this destruction of their herds and have upon occasion murdered the officials sent to carry out the stringent orders. After about 500,000 cattle had been shot and buried and thousands of exposed but uninfected cattle sent to market, the opposition became so strong that the United States and Mexico agreed to stop slaughtering and depend upon quarantine and vaccination. Cattlemen in the United States were very dubious of the new policy and feared that the dread disease might enter the United States.

UNITED STATES AND DEFENSE BASES IN PANAMA

After the United States entered the Second World War, it was found advisable to strengthen the defenses of the Panama Canal by the addition of a number of air bases in Panamanian territory. Panama declared war on Japan the day after Pearl Harbor, and on May 18, 1942 signed an agreement with the United States permitting the use by the armed forces of the United States of numerous defense areas in the republic outside the Canal Zone.

The largest of these was the Rio Hato air base situated about 80 miles southwest of the Canal, for which the United States was to pay an annual rental of 10,000 balboas. As the war progressed, numerous other bases were established until the United States had constructed some 134 defense sites in Panama to protect the Canal.

The agreement with the Panamanian Government provided that all lands taken over were to be evacuated one year after the definite treaty of peace had been signed. It was not expected that peace would be delayed so long after military action ceased, and although the United States withdrew gradually from most of the bases, it was felt that the world situation demanded the retention of 14 of these bases, including the bomber base at Rio Hato, for at least ten years longer. After discussing the matter for about a year, a treaty was finally signed Dec. 10, 1947 by the terms of which Panama agreed to lease the Rio Hato base to the United States for a period of ten years with the privilege of a ten-year renewal period, and the other sites, principally technical installations, for a period of five years.

Although adequate compensation was to be paid for the use of the sites, strong opposition developed to the agreement, particularly among the students of the University. The Panamanian Foreign Minister resigned in protest at the terms, and it was soon evident that the treaty might have difficulty in getting the approval of the Legislative Assembly. President Enrique Adolfo Jimenez assured U. S. Ambassador Frank Hines that he had the necessary votes to secure the adoption of the treaty, but nationalistic feeling, stimulated by Communist abetting, became so aroused that the National Assembly refused to approve the treaty by a unanimous vote cast Dec. 22. Former Foreign Minister Alfaro, who had resigned rather than sign, declared that the rejection of the pact was due to a reaffirmation of Panama's national sentiment. Immediately following the rejection, orders were given by the United States to evacuate all the bases immediately. As the year ended, it was felt that sober second thoughts might change the Panamanian attitude. The suggestion raised in Congress that the United States take steps immediately to consider the construction of a sea-level canal through Nicaragua may help the Panamanians to reconsider their summary rejection.

SOCIAL, TECHNICAL, AND EDUCATIONAL COOPERATION

A considerable increase took place during the fiscal year 1946-47 in the exchange of cultural and technical services between the American republics. The Interdepartmental Committee on Scientific and Cultural Cooperation served as the mechanism for utilizing the resources of the United States Government in promoting social and economic welfare and cultural interchange among the 21 American republics. During the year, 249 professors, teachers, and specialists in various technical and cultural fields were exchanged between the United States and the other American republics; 162 United States technicians were stationed in the other republics; and 327 Latin Americans were being trained in the United States in preparation for working in some branch of their own government. During the same period 308 students from the American republics were studying in the universities or industrial plants of the United States.

In the field of agriculture alone, 158 officials and specialists came to the United States from 18 of the other American republics on special governmental or private missions seeking experience to be applied in their official or professional jobs. Six full-time specialists from the United States were stationed in the agricultural station of Tingo Maria, in central Peru, in 1947.

By October, 1947, there were 29 cultural centers in the Latin American Republics receiving support from the U. S. Department of State, and it is planned that, by June 30, 1948, these United States-oriented cultural centers will be found in every Latin American capital except San Salvador. English language instruction in the centers reached the following number of students: Buenos Aires, 4,000; São Paulo, 3,500; Mexico City, 2,500; Rio de Janeiro, 2,000; and Lima, 1,500. In 1947, the Congress of the United States appropriated $584,868 to assist in the form of American personnel, materials, and small grants of cash to defray operating deficits of these centers. It seemed evident that cultural cooperation would march side by side with cooperation for continental security.

THE UNITED STATES AND THE MIDDLE EAST

By Grant S. McClellan
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GENERAL

United States aid to Greece and Turkey and active American participation in the United Nation's decision to partition Palestine represent the two outstanding developments of Middle East-American relations in 1947. Both the Greek-Turkish aid program and approval of division in the Holy Land also represent significant new landmarks in American policy toward the eastern Mediterranean area. As British power was withdrawn from Greece, the United States succeeded to the task of bolstering that nation's economy and aiding in its defense. Likewise, the United States, and to a lesser extent the U.S.S.R., inherited Britain's responsibilities in attempting to reach a settlement between rival Jewish and Arab claimants for Palestine.

YEAR OF DECISION

As the year ended, however, it was too early to predict what the outcome of temporary American aid for Greece and Turkey would mean in terms of a new power alignment in the Near East. Despite the fact that partition for Palestine was voted by the General Assembly of the UN on Nov. 29, the year closed with much speculation also whether the decision would lead to peace between the two opposing nationalist forces on the spot or to conflict between Washington and Moscow when the time came to implement the plan. But because of what might follow in its wake, 1947 may well become known as the "year of decision" in Middle East-American relations. For just as American aid to Greece led to deep involvement in internal politics in that country, which in turn raised the fear of counter measures on the part of Russia or its satellites in southeast Europe, so too any thought of direct military action in Palestine in setting up the two new states raised the issue of what might follow throughout the Arab lands should American and Russian forces be employed in the heart of the Moslem world.

UNITED STATES INTERESTS BROADENED

Elsewhere in the Near East the countries stretching from Cairo to the borders of the newly formed British Dominions in the subcontinent of India experienced the third year of postwar reconstruction with little to show toward real stabilization either economically or politically. In Turkey, the emergence of a Democratic Party to offset the single state party gave but little hope that the Ankara régime was soon to become a model of democracy. American aid to Ankara, unlike that for Greece, was granted solely for the purpose of helping expand the military forces of the nation, but it was doubtful that the $100,000,000 so granted would effectively relieve the economic burden of Turkey, a state where army, navy, and air force expenditures accounted for so large a portion of the national budget. What the aid program for Turkey implied above all, of course, was that America's security interests extended to the Dardanelles. The problem of the Turkish Straits, however, was brought no nearer settlement during the year than in 1946.

Keen American interest continued in 1947 in the oil reserves of the Near East, but few new developments were announced in this regard. Contracts were given to a group of five American engineering companies, as announced on Feb. 23, for construction of a $100,000,000 Saudi Arabian pipeline to the sea. The American construction company of Morrison-Knudsen, on the other hand, was employed during the year to build dams, irrigation, and power projects in the strategic country of Afghanistan. Washington also maintained active official interest in Iranian affairs during the year. The high point of that concern was expressed by our Ambassador, George V. Allen, on Sept. 11, when he indicated that the United States would support Iran's independence. Pledging aid if Iran did not yield its sovereignty with respect to Russian demands for entry into Iranian oil developments, Allen said: "The United States has no proper concern with proposals of a commercial or any other nature made to Iran by any foreign government as long as those proposals are advanced solely on their merits, to stand or fall on their value to Iran. We and every other nation in the world, however, do become concerned when such proposals are accompanied by threats of bitter enmity or by a statement that it would be dangerous for Iran to refuse. . . . Patriotic Iranians, when considering matters affecting their national interest, may therefore rest assured that the American people will support fully their freedom to make their own choice."

UNITED STATES IN GREECE

American concern about Iran was overshadowed, however, by the more dramatic events involving Greece. Enunciation of the Truman Doctrine on March 12, 1947, when aid for Greece and Turkey was first proposed, as well as the United States stand on Iran, clearly showed that the Near East was an area that Washington believed could be kept free of Soviet domination. Thus the policy of containing the Soviet Union as prescribed in the Truman Doctrine saw its most concrete manifestation in the area of Russia's historic search for warm water outlets in the south. The Middle East—the ancient bridge between the East and West—again became in 1947 the locale for rivalry between great powers lying outside the area.

The British government, which for so long had been the dominant foreign power in Greek affairs, suddenly announced Feb. 24 that it could not afford economic and financial support for Greece and Turkey after March 31, and that the 10,000 British troops in Greece would soon be withdrawn. Within three weeks thereafter, on March 12, President Truman delivered before the Senate and House of Representatives his message calling for aid to Greece both to assist in economic reconstruction and to prevent the spread of communism in the Aegean region. More broadly the President declared, "totalitarian régimes imposed on free peoples undermine the foundations of international peace and hence the security of the United States." This policy was embodied in law May 22 when $300,000,000 for Greece and $100,000,000 for Turkey were appropriated by Congress. Of the amount for Greece, $150,000,000 was originally designated for economic aid, and half the total was to be used for military purposes. By the year's end, however, it became clear that more of the funds were needed for military expenses, and the original grant would have to be supplemented by other funds in the years ahead.

Dwight P. Griswold, former Governor of Nebraska, was chosen to administer on the spot the funds provided by Congress. While his mission and the military personnel involved were to have advisory functions only, it soon became apparent that detailed questions of public policy in Athens would have to be settled by that group if American aid was to be of real benefit. As the two governments had previously agreed, Griswold and his staff were soon advising the Athens régime on finances, trade, and the inflationary crisis. Major changes in the Greek tax system were suggested, reform in the civil service was urged, and new policies on foreign trade, labor, and agriculture were outlined.

United States aid was not offered on a blank-check basis, for the Greek government agreed that military and economic assistance was conditional upon proof of immediate intention to institute the necessary reforms. No political requirements were laid down by Washington, and intervention in Greek internal politics was avoided, although the line of demarcation between what was primarily an internal Greek political matter and a situation which called for United States concern became progressively less clear cut.

Help in the country's economic restoration was recognized as the most important task which confronted the Americans in Athens. That this would be so had been made clear by Paul Porter, chief of the American Economic Mission which studied conditions in Greece during the first three months of 1947. He reported that the nation's economy had recovered little since the Nazi occupation. Important as economic recovery appeared, the last months of 1947 saw the emergence again of civil war as Greece's chief threat, and combatting guerrilla warfare in the north came to be the most pressing issue the Griswold group confronted.

U. S. SUPPORT FOR GREECE IN THE UN

That a "Free Greek Government" was to be established in the north was first hinted in the early autumn. A later announcement Dec. 24 indicated that the rebel régime was headed by Markos Vafiades. Athens immediately prepared to counter the rise of this communist group, but for Washington and for Americans on the spot this development brought to a head two problems that faced this country from the outset of its active interest in Greece. First, Washington's support of the Rightist coalition government in Athens was again in dispute. By December, however, no new policy in this regard had been announced. How to deal most effectively with the guerrilla activities in the north—the second problem—was one that Washington wrestled with during the entire year.

When, in December 1946, Greece first brought charges in the UN against its northern neighbors for interference in Greek affairs, the United States immediately proposed that a UN fact-finding commission be sent to the border region. To this suggestion the Soviet Union agreed. The commission was subsequently established and Mark F. Etheridge, publisher of the *Louisville Courier*, headed the American delegation. The Balkan Commission's work, however, was impeded by a rift that soon developed between the liaison representatives of Yugoslavia, Albania, and Bulgaria, and the Russian and Polish delegates on the one hand, and the nine other members of the group and the Greek representative on the other. No unanimous report eventuated from the Commission's work, but the majority statement, presented to the Security Council June 27, was a serious indictment of the three Slavic states on Greece's border.

From that time, cooperation between the Soviet bloc in the UN and the western powers broke down. Russia vetoed in the Security Council July 29 the American proposal that that body establish a semipermanent commission to keep watch on the Greek border, but a similar Balkan Commission of the UN's General Assembly (where the Soviet Union's objections did not constitute a veto) was later appointed. Its duty was to keep watch along the Greek side of the northern border, yet its only real power was to observe and report violations of international law. By the year's end, however, its many surveys showed that guerrillas ranging in numbers from less than a score to several hundred had escaped across the border, were aided there and supplied with arms, and then escorted back to Greece in military formations.

The UN General Assembly, in its autumn session in New York, again discussed the Greek case. Again the United States sought to strengthen the UN's action on the Greek border disturbances. Most forthright of all United States pronouncements on the issue, however, came after the establishment of the "Free Greek Government" in the northern border area. On Dec. 30, Under Secretary of State Robert A. Lovett warned that recognition by any countries of the so-called provisional government in northern Greece would have serious implications, that it would be an open disregard of the United Nations resolution setting up the Greek Border commission, and clearly contrary to the principles of the UN Charter.

AMERICAN POLICY ON PALESTINE

If United States-Russian differences regarding Greece mounted throughout the year 1947, these two countries found that Palestine offered a point of temporary agreement. How long the cooperation between Washington and Moscow might last was not known. As indicated above, if outside military force should be required in the future to establish the Jewish and Arab states, then friction could easily ensue between the two great power capitals on this issue. Terror again struck in the Holy Land after the UN decision Nov. 29 and continued for the next month. It was this fact especially which led observers to question United States and Russian ability to work together amicably in the coming year as they had in voting for partition.

As had been true for so many previous years, Palestine was a question of international importance from the very beginning of 1947. Not until the breakdown of separate conversations with Arab and Zionist spokesmen in January and February, however, did the British government decide to submit the question to the UN. On Feb. 14, after an unsuccessful effort to reach agreement on a British proposed partition plan, Foreign Secretary Bevin announced that the Attlee government would take the Palestine issue to the UN. The partition plan presented by that government in the above parleys had called for two semi-autonomous Arab and Jewish areas, subject to over-all authority of the British government, and a proviso that the problem would be submitted to the UN at the end of five years if it still remained unsolved.

SPECIAL UN SESSION

Continued tension in Palestine during the following months led Britain April 2 to request the Secretary-General of the UN to call a special session of the General Assembly to consider Palestine. More specifically, Britain asked that the Special Assembly be called to constitute and instruct a special committee on Palestine to prepare a report for the regular autumn session of the UN General Assembly. By April 13, a majority of the nations signified concurrence on the British proposal, and on April 28 the special session opened in New York. The chief issue at stake during this session was the technical one of defining the composition and competence of the special committee. When the Assembly's deliberations were ended May 15, a commission had been chosen of smaller neutral nations for the task of investigating all issues relevant to Palestine. In the hearings and discussions held between April 28 and May 15 the Great Powers, except the United States, also revealed the attitude each government subsequently adopted with respect to the substantive question of partition.

On May 29 in Britain, Foreign Secretary Bevin stated that he personally would not feel bound by a UN decision regarding Palestine unless it was unanimous. This approach was to characterize many British statements in the autumn Assembly session and in London's attitude after partition was finally approved. Because the position of the U.S.S.R. had never been divulged before, the Soviet delegate's statement on May 14 was more revealing. He declared, if a unitary state for both Jews and Arabs could not be agreed upon for Palestine, then Russia would consider an alternative plan of separate states in the Holy Land.

The United Nations Special Commission on Palestine (UNSCOP) took up its work in June and completed what was, in effect, three reports in one on Aug. 31. Despite the difficulties first faced by the committee caused by an Arab boycott, its final recommendations were broad in scope, governing the situation of Jewish refugees in Europe, proposals on dividing the Holy Land, and recommendations for further UN supervision. The three reports in one consisted of a majority statement favoring outright partition, a minority federation plan, and a list of certain general principles, unanimously agreed to, which all members felt should be followed in any settlement.

UNSCOP REPORT AND PARTITION

The most outstanding general principles adopted by UNSCOP were as follows. The British mandate should be terminated and independence granted at the earliest practicable date. During the transitional period, the authority in charge in Palestine should be responsible to the UN. Safeguards were suggested for the preservation of holy places, and it was accepted as a cardinal principle that economic unity for the entire area be established under any settlement. The new state or states in Palestine were required to be democratic in character and fully prepared to cooperate with the UN. The special committee also urged the General Assembly promptly to take the initiative in dealing with the approximately 250,000 displaced Jews in Europe. However, in one general recommendation, with two dissenting votes, the committee stated that "it should be accepted as incontrovertible that any solution for Palestine can not be considered as a solution of the Jewish problem in general."

The majority statement on partition was supported by Canada, Czechoslovakia, Guatemala, Holland, Peru, Sweden, and Uruguay. Australia did not vote for either plan. The partition scheme embodied the above general principles through the proposals to create two independent states after Sept. 1, 1949, and provided for the eventual establishment of an economic union for the whole of Palestine. In addition, the majority plan called for the early entry of 150,000 Jewish refugees into the Jewish state, and a separate international district for the city of Jerusalem and its environs. The minority members of the commission—Iran, India, and Yugoslavia—suggested a federal state in Palestine, with a common citizenship and nationality, and a central capital in Jerusalem. In this case, the federal government would have full control of defense, foreign relations, immigration, currency, federal taxation, patents, copyrights, and interstate commerce. Local powers, comparable to those of American state governments, would have been entrusted to the two members of the federation—the Arab and Jewish states. Had this binational federal plan been adopted, less territory would have been turned over to the Jewish state than if two wholly independent units had been created. Under the majority plan of UNSCOP, the new Jewish state would have had a population at the outset of about 500,000 Jews and 416,000 Arabs. Its area would constitute about 60 per cent of Palestine. Arabs would have numbered about 715,000 in the Arab state, and there would be about 8,000 Jews as well. The international district of Jerusalem would have contained approximately 106,000 Arabs and 100,000 Jews.

As finally adopted by the General Assembly Nov. 29, partition for Palestine closely followed the majority report of UNSCOP. With ten states abstaining and Siam absent, partition was approved by the unexpectedly large majority of 33 to 13. The Assembly's decision thus forshadowed the creation of three new political units in the Holy Land: an independent Jewish state of 5,500 square miles inhabited by 538,000 Jews and 397,000 Arabs; an independent Arab state of 4,500 miles containing 804,000 Arabs and 10,000 Jews; and a UN trusteeship territory in the 289 square mile enclave of Jerusalem for 105,000 Arabs and 100,000 Jews. Because the final plan adopted by the General Assembly excluded the Arab port of Jaffa from the Jewish state, the population figures given in the UNSCOP report were altered. During a transition period which is to end by Oct. 1, 1948, the partition plan will be administered, "under the guidance of the Security Council," by a five-member UN commission comprised of Bolivia, Czechoslovakia, Denmark, Panama, and the Philippines. The three parts of Palestine are to form an economic union, and the Jewish and Arab states are to have armed militia to maintain internal order and prevent frontier clashes. Provision was made for democratic institutions and protection of minorities.

At first it was decided that British troops were to be withdrawn and the British mandate terminated by May 15. Since the Assembly's action, however, London has announced that it will withdraw from Palestine at an even earlier date. This action and the decision of the Arab League, which announced that it completely rejected the partition scheme on the date of its acceptance by the UN, served to complicate anew the peaceful implementation of a settlement. Arab threats that Moslems would fight to the death rather than allow a Jewish state to rise in Palestine were discounted as more bluff than realistic policy by most members of the United Nations. Yet, as the year ended, it was far from certain that the great powers could agree on a plan for transferring power in the Holy Land, thus establishing the two new states as independent political units by Oct. 1, 1948 as proposed by the UN Assembly.

FOREIGN SERVICE OF THE UNITED STATES

By C. M. Ravndal

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THE FOREIGN SERVICE ACT OF 1946

The Foreign Service of the United States underwent a fundamental reorganization as a result of the passage, by the Seventy-Ninth Congress, of the Foreign Service Act of 1946. This act, which is the basic legislation for the Foreign Service as it operates today, represents a great advance from the point of view both of personnel management and administration.

It gathered together all previous legislation in one basic charter. It set up five basic groups of personnel: Ambassadors and Ministers, Foreign Service Officers, Foreign Service Reserve Officers, Foreign Service Staff Officers and employees, and alien personnel. This was a very important step, for the structure of the Foreign Service, through the addition over a period of years of various small categories, had become complex and difficult to administer.

The act also set up a new pay scale, bringing up to date pay scales some of which had previously been set up in 1855. The legislation also provided authority for the payment of needed allowances for Foreign Service personnel living abroad, in addition to the already existing representation and cost of living allowances. The new allowances included a transfer allowance, a maintenance allowance for residences of principal officers abroad, and the authority to reimburse expenses resulting from illness or injury incurred in line of duty.

In order to provide for a more highly trained Foreign Service, the act established a Foreign Service Institute which, like the Army and Navy Staff Colleges, will train Foreign Service personnel progressively through their careers. The act also provided that personnel should receive home leave after two years abroad, as compared with the former requirement of three years, and specified that three of the first 15 years of service of each Foreign Service Officer must be spent in the United States.

In addition the new legislation set up a promotion-up and selection-out procedure by which it was hoped to keep Foreign Service officers developing continuously and to prevent the accumulation of personnel who had passed their peak of performance.

DUTIES OF THE FOREIGN SERVICE

The Foreign Service of the United States on December 31, 1947, numbered approximately 11,000 persons including ambassadors, ministers, Foreign Service officers, Foreign Service Reserve officers, Foreign Service staff officers and employees, alien clerks and employees, and consular agents.

The officers and employees of the Foreign Service protect the interests of the United States in accordance with treaties and international law, and advise, protect, and assist American citizens resident, traveling, or having interests abroad. They seek to prevent or to correct practices which might discriminate against the United States or its citizens.

They negotiate treaties, conventions, and protocols regarding international intercourse, tariffs, shipping, commerce, and the preservation of the peace in accordance with the instructions of the Secretary of State and the President. They observe, analyze, and report on significant political, social, and economic conditions and trends in the country to which they are assigned. Since an important function of the Foreign Service is the promotion and protection of the foreign trade of the United States, trade inquiries, trade disputes and market conditions are the subject of numerous communications.

AMBASSADORS AND MINISTERS

Ambassadors and ministers are appointed by the President by and with the advice and consent of the Senate, some being career members of the Foreign Service and others appointed from private life. In January, 1948, about 52 per cent of the ambassadors and ministers were appointed from the career Foreign Service.

Historically, embassies headed by ambassadors were maintained in the larger foreign countries and legations, headed by ministers, in smaller countries. In recent years, however, the United States has maintained embassies in all the other American republics and in some of the smaller countries abroad, so that the size or importance of a country no longer necessarily determines whether the chief of a mission is an ambassador or a minister.

Ambassadors and ministers receive salaries in four classes depending upon the salary classification of the post to which they are assigned. These classes are $25,000, $20,000, $17,500, and $15,000. In addition they receive allowances which vary from post to post and from year to year depending on conditions in the particular country and on the availability of funds.

FOREIGN SERVICE OFFICERS

Foreign Service officers are appointed by the President, by and with the advice and consent of the Senate. Normally candidates take both written and oral examinations, and upon successfully passing these examinations are placed upon the eligible list from which the President makes nominations to the Senate. Under certain circumstances individuals may be appointed Foreign Service officers after serving specific periods of time in either the Department of State or in other branches of the Foreign Service.

Foreign Service officers are commissioned both as diplomatic and consular officers and, aside from those who may be Chiefs of Mission (Ministers or Ambassadors), hold the titles

DIPLOMATIC PERSONNEL

Ambassadors

	Accredited by United States	Accredited to United States
Argentina	James Bruce	Señor Dr. Don Oscar Ivanissevich
Australia	Robert H. Butler	Mr. Norman J. O. Makin
Belgium	Admiral Alan G. Kirk	Baron Silvercruys
Bolivia	Joseph Flack	Señor Don Ricardo Martinez Vargas
Brazil	William D. Pawley	Mr. Carlos Martins
Burma	J. Klahr Huddle	U So Nyun
Canada	Ray Atherton	Mr. Hume Wrong
Chile	Claude G. Bowers	Señor Don Felix Nieto del Rio
China	J. Leighton Stuart	Dr. V. K. Wellington Koo
Colombia	Willard L. Beaulac	Señor Dr. Don Gonzalo Restrepo-Jaramillo
Costa Rica	Nathaniel P. Davis	Señor Don Francisco de P. Gutierrez
Cuba	R. Henry Norweb	Señor Guillermo Belt
Czechoslovakia	Laurence A. Steinhardt	Dr. Juraj Slavik
Denmark	Josiah Marvel, Jr.	Vacant
Dominican Republic	George H. Butler	Señor Dr. Luis Francisco Thomen
Ecuador	John Farr Simmons	Señor Dr. Don Augusto Dillon
Egypt	S. Pinkney Tuck	Mr. Mahmoud Hassan
El Salvador	Albert F. Nufer	Señor Dr. Don Hector David Castro
France	Jefferson Caffrey	M. Henri Bonnet
Germany	Robert D. Murphy (Political Adviser)	—
Great Britain	Lewis W. Douglas	The Right Honorable the Lord Inverchapel
Greece	Lincoln MacVeagh	Mr. Vassili Dendramis
Guatemala	Edwin J. Kyle	Vacant
Haiti	Harold H. Tittman, Jr.	Mr. Joseph D. Charles
Honduras	Herbert S. Bursley	Señor Dr. Don Julian R. Caceres
India	Henry F. Grady	Mr. M. Asaf Ali
Iran	George Allen	Mr. Hussein Ala
Iraq	George Wadsworth	Mr. Ali Jawdat
Italy	James Clement Dunn	Signor Alberto Tarchiani
Japan	William J. Sebald (Political Adviser)	—
Mexico	Walter Thurston	Señor Dr. Don Antonio Espinosa de los Monteros
Netherlands	Herman B. Baruch	Mr. E. N. van Kleffens
Nicaragua	—	—
Norway	Charles Ulrick Bay	Mr. Wilhelm Munthe de Morgenstierne
Pakistan	Paul H. Alling	Mr. M. A. H. Ispahani
Panama	Brig. Gen. Frank T. Hines	Vacant
Paraguay	Fletcher Warren	Señor Dr. Don Guillermo Enciso
Peru	Prentice Cooper	Señor Dr. Don Humberto Fernández-Davila
Philippines	Emmet O'Neal	Mr. Joaquin M. Elizalde
Poland	Stanton Griffis	Mr. Jozef Winiewicz
Portugal	John C. Wiley	Senhor Pedro Theotónio Pereira
Siam	Edwin F. Stanton[1]	Vacant
Spain	—	Señor Don Germán Baraibar[2]
Turkey	Edwin C. Wilson	Mr. Hüseyin Ragip Baydur
Uruguay	Ellis O. Briggs	Dr. Juan Carlos Blanco
U.S.S.R.	Lt. Gen. Walter Bedell Smith	Mr. Alexander Panyushkin
Venezuela	Walter J. Donnelly	Señor Dr. Gonzalo Carnevali
Yugoslavia	Cavendish W. Cannon	Mr. Sava N. Kosanovic

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[1] Legation raised to Embassy.
[2] Chargé d'affaires *ad interim*.

DIPLOMATIC PERSONNEL

MINISTERS

	Accredited by United States	Accredited to United States
Bulgaria	Donald R. Heath	Dr. Nissim Judásy Merorah
Afghanistan	Ely E. Palmer	Mr. Abdol Hosayn Aziz
Austria	John G. Erhardt	Dr. Ludwig Kleinwaechter
Ethiopia	George R. Merrell	Ras H. S. Imru
Finland	Avra M. Warren	Dr. K. T. Jutila
Hungary	Selden Chapin	Mr. Rustem Vambery
Iceland	———	Mr. Thor Thors
Ireland	George Garrett	Mr. Sean Nunan
Latvia	———	Dr. Alfred Bilmanis
Lebanon	Lowell C. Pinkerton	Dr. Charles Malik
Liberia	Rafael O'Hara Lanier	Mr. Charles D. B. King
Lithuania	———	Mr. Povilas Žadeikis
Luxembourg	Admiral Alan G. Kirk	Mr. Hugues LeGallais
New Zealand	Robert M. Scotten	Sir Carl Berendsen
Rumania	Rudolf E. Schoenfeld	Mr. Mihai Ralea
Saudi Arabia	J. Rives Childs	Sheikh Asad Al-Faqih
Sweden	H. Freeman Mathews	Mr. Herman Eriksson
Switzerland	John C. Vincent	Mr. Charles Bruggmann
Syria	James H. Keeley	Mr. Faiz El-Khouri
Union of South Africa	Gen. Thomas Holcomb	Mr. H. T. Andrews
Yemen	J. Rives Childs	———

of Minister,* Counselor, First, Second, and Third Secretary, Consul General, Consul or Vice Consul, according to their rank and the posts they occupy. It is usual for officers to have both consular and diplomatic titles simultaneously if they are assigned to an embassy or legation.

Except for officers who qualify for appointment after serving abroad either in the Reserve or Staff branches or in the Department of State, all Foreign Service officers start in Class 6, the lowest class. Salaries range from a minimum of $3,300 in Class 6, to a $13,500 maximum in Class 1 and the Class of Career Minister. Depending upon the post and its duties, Foreign Service officers serving overseas may receive, in addition to their pay, allowances for rent, cost of living, and representation. Promotion is determined on the basis of merit with a certain time in grade required in each class. Foreign Service officers are expected to progress through the grades, and a "promotion-up or selection-out" system is now in effect which automatically retires officers who fail to win promotion within a stipulated number of years. The age of retirement is normally 60, and upon retirement an officer is provided with an annuity, out of an annuity fund toward which he has contributed 5 per cent of his salary.

During an officer's career in the Service he is expected to serve where he is needed in positions for which he is deemed best qualified. Officers are utilized interchangeably in consulates, diplomatic missions, and in the Department of State and other departments and agencies of the Federal Government, and are normally moved from one post to another and from one position to another every few years.

FOREIGN SERVICE RESERVE OFFICERS

Foreign Service Reserve officers are appointed by the Secretary of State for non-consecutive periods of not more than four years each. They may be assigned from other government agencies or from private life, and are appointed to any one of the six classes of Foreign Service officers appropriate to their age, qualifications and experience. They must have outstanding qualifications of a specialized nature. Normally they specialize in economic, cultural, agricultural or other types of work requiring experience and special training.

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* Certain senior Foreign Service officers are appointed to the class of Career Minister when their duties are such as to be comparable in importance with those of an ambassador or minister. Examples are the second ranking officer at the American Embassy in London, the Consul General in Shanghai, and the directors of certain offices in the Department of State, all of which hold the rank of minister.

Included in this category at the present time are a number of public affairs, cultural relations, and information officers. These officers may hold diplomatic titles such as Counselor, First, Second or Third Secretary or Attache, and handle their particular specialized-work for their respective chiefs of mission.

FOREIGN SERVICE STAFF OFFICERS AND EMPLOYEES

Foreign Service staff officers and employees include all American personnel other than Foreign Service officers and Foreign Service Reserve officers. They are appointed by the Secretary of State without special examination, appointments being based upon age, qualifications and experience. This group includes administrative officers and assistants, disbursing and accounting personnel, clerks, receptionists, code clerks, file clerks, guards, couriers and translators.

Members of the staff corps receive annual salaries according to a scale of 22 classes with a top of $10,000 and a bottom of $720. The usual starting pay of clerical personnel is $2,160 in Class 14. Staff corps members receive the same privileges as Foreign Service officers, and also receive certain allowances depending on their duties and the conditions at the post to which they are assigned.

ALIEN CLERKS AND EMPLOYEES

Alien clerks are appointed in the field, and salaries are determined by the local rates prevailing. The category includes clerks, translators, interpreters, custodians, messengers, chauffeurs, porters, doormen, guards, janitors and charwomen, electricians, telephone operators, gardeners, watchmen and maintenance men.

ADMINISTRATION OF THE FOREIGN SERVICE

The Foreign Service is administered by the Director General of the Foreign Service who is appointed by the Secretary of State from among Foreign Service officers in the Class of Career Minister or Class 1. He is assisted by a Deputy Director General, and the Office of the Foreign Service, a part of the Department of State. Within the Office of the Foreign Service there are six divisions: The Division of Foreign Service Personnel, the Division of Foreign Service Administration, the Division of Foreign Service Planning, the Division of Foreign Service Reporting, the Foreign Service Institute, and the Division of Foreign Buildings Operations.

The Board of the Foreign Service is an interdepartmental board charged with making recommendations to the Secretary of State concerning the functions of the Service. Policies and procedures governing the selection, assignment, rating and promotion of Foreign Service officers fall within its province as well as those governing the administration and personnel management of the Service. The Board is made up of three Assistant Secretaries of State, the Director General of the Foreign Service, and representatives from the Departments of Agriculture, Commerce and Labor.

CHRONOLOGY OF INTERNATIONAL EVENTS, 1947

JANUARY

1—Britain considers establishment of Jewish state in Palestine when matter comes before London Conference Jan. 21.

2—In Nanking, China, 1,000 Chinese students demand the ouster of American servicemen from China.

3—French Colonial Minister Marius Montet fired on by Indo-Chinese snipers during inspection trip in Hanoi. New violence in Palestine as Jews issue peace appeal.

4—Fifty-five persons arrested in Budapest charged with plotting to seize the government in Hungary to restore the regime of Nicholas Horthy, former regent. UN Security Council announces it will meet in Athens Jan. 30 to make on-the-spot investigations in the Balkans. Bernard Baruch and his six associates resign as U. S. members of UN Atomic Energy Commission; urges that more atomic bombs be made.

6—British troops numbering close to 100,000 mobilized to crush open rebellion against law and order in Palestine. United States asks Russia and China to arrange to end Soviet military control of Dairen and open the Manchurian port to world traffic under Chinese administration.

8—James F. Byrnes resigns as U. S. Secretary of State; Gen. George C. Marshall confirmed as his successor. Russian and Hungarian troops join in raid on Budapest Ministry.

9—Great Britain cancels cabinet session on Palestine; decides to study peace with Germany as most important problem. United States calls on Poland to honor her pledge to hold free and unfettered elections. Anti-Semitism again flares up in German public life.

10—Italy appears ready to launch a new political group known as the Italian Socialist Party. Australia stands as only holdout against big powers' Foreign Ministers' decision to place Trieste under administration of UN Security Council.

11—Greek guerrillas around Mt. Vermion, west of Salonika, proclaim general mobilization. *New Times,* weekly Soviet foreign affairs publication, advocates internationalization of Panama Canal. Albanian government rejects British demand for apology and compensation for mine damage to two British destroyers and loss of 44 sailors.

14—Socialist Vincent Auriol is elected President of France's National Assembly, receiving support of the Communists in addition to his own party. Bombay police raid headquarters of Communist Party of India. The Netherlands demand a stern peace for Germany as deputies of four-power Foreign Ministers' work on German and Austrian treaties. Viet Nam nationalists renew attacks on French in Hanoi.

15—Australia proposes that UN Security Council create a disarmament commission.

16—Vincent Auriol elected President of Fourth French Republic. Great Britain and France agree to enter into a new military alliance against any fresh German menace.

18—Polish government mobilizes 500,000 police to guard polls in coming election. Chinese communists reject government bid to reopen truce talks.

19—Italian Premier de Gasperi resigns office.

20—Communists display strength in Brazilian elections, and win 324 of 444 Polish Parliament seats.

21—Gen. George C. Marshall takes oath of office as Secretary of State.

23—Entire Istrian Peninsula being vacated by Italian inhabitants on eve of transfer of the land from Italian to Yugoslav hands.

24—Poland's "free" election called a farce by members of U. S. House of Representatives who call for a housecleaning of Communists in the United States.

25—Six Chinese Communist Divisions routed by government troops in fighting near Chitamu in central Manchuria. Demetrios Maximos named as Premier of Greece to succeed Constantin Tsaldaris. Communists lead in Rio de Janeiro voting. Warren Austin, chief American delegate to the United Nations, reaffirms United

States full support of Baruch plan for international atomic control. Finn Ronne Antarctic Expedition sails from Beaumont, Texas, to be based on Marguerite Bay, Palmer Land Peninsula in the Antarctic.

27—British military forces place 90,000 Palestine Jews under arrest for the kidnaping of a British banker and a British judge.

28—Underground group in Palestine releases two British hostages. United States charges Polish provisional government with failure to carry out its pledges. Great Britain agrees to give Burma its independence. Chinese General Ho Peng-chu, Communist leader, and his 50,000 troops join with government troops. John J. McCloy, former Assistant Secretary of War in the United States accepts presidency of World Bank, taking the place vacated by Eugene Meyers.

29—United States drops its organized effort to end Chinese civil strife.

30—Chinese forces cut Peiping-Tientsin Railway line. Austria asks Four-Power Conference for a treaty so drawn as to operate as a magna carta. Italy asks for representation in writing in treaty with Germany.

31—Palestine government orders compulsory evacuation of British women and children from the Holy Land to clear the stage for action against terrorism.

FEBRUARY

1—Left-wing Japanese labor leaders challenged Gen. MacArthur's authority in calling off general strike. General Kotikov, Russian commandant for Berlin, makes open attack on Col. Howley, American deputy commandant, charging him with an attempt to sabotage the election of members of Berlin's Trade Union Federation. French forces locked in fierce combat with Viet Nam troops at Hue, capital of Annam Province in Indo-China.

3—Eleven former attendants at Ravensbruck concentration camp under Nazi rule sentenced to death for killing and mistreating Allied women prisoners. Herbert Hoover leaves United States to make a survey of food problems in occupation zones in Germany and Austria.

4—President Truman tells new Polish Ambassador Winiewicz that Polish provisional government failed to carry out its pledge to hold a free election.

5—Gen. Chiang Kai-shek recalls arch foe of Reds, General Ho Ying-chin, from his post in America as China's representative on UN Staff Committee. Yugoslav troops battle with British troops near Cobidilis on the Morgan Line.

6—Gerhard Eisler, alleged chief Communist agent in the United States, is cited for contempt by the House Un-American Activities Committee. U. S. Maritime Commission charges that Russia ignores efforts to regain 95 ships turned over to Soviets under lend-lease.

7—U. S. House Committee on Un-American Activities begins probe of Russian spy ring in Canada. British Cabinet considers compromise Palestine formula to permit 100,000 Jews from among European displaced persons camps to enter immediately a semi-autonomous Jewish province in the Holy Land.

8—Undersecretary of State Clayton states that Russia has ignored four requests by the United States to begin settling lend-lease debts. Prime Minister Attlee's Labor government faces a severe storm of criticism over coal crisis in England.

10—British Gen. R. W. M. De Winton murdered by a woman in Pola during Italian demonstration against treaty signed by Italy. Fuel famine in Britain makes 4,000,000 workers idle. Italy, Rumania, Bulgaria, Hungary, and Finland sign treaties terminating their part in Second World War, of these, Italy was reduced to a third-rate power, stripped of her colonies, and her Army and Navy cut to a shadow.

11—Chiang Kai-shek rallies economists to plan recovery from financial crisis as China's inflated dollar plunges to new low. Greek air ministry signs contract with Great Britain for delivery of airplanes and supplies. Gen. Mark Clark of American occupation forces, charges that freedom of speech is non-existent in the Soviet Union.

12—UN Security Council sets up an 11-nation "Commission for Conventional Armaments."

14—China suspends open dealings in gold bars and American banknotes. Soviets make new demands that atomic weapons be outlawed before any control system is set up.

15—Herbert Hoover reaches Rome in his journey to European occupied areas where he will study food conditions. Australia asks that small nations have a voice in dictating control policies in occupied Germany.

16—Russia protests Under-secretary Acheson's hostile attitude, claiming that he branded Red policy as aggressive and expansionist. United States extended a second $15,000,000 credit to Hungary.

17—In fight for national survival, China pegs dollars, restricts prices, and calls in fortunes abroad. Hundreds of Jews in Palestine go on strike for an hour in protest against deportation of 800 uncertified immigrants from Haifa to Cyprus. The United States informs the world that it intends to keep the strategic chains of mandated islands in the Pacific to ensure American security.

18—British Prime Minister Attlee announces that displaced persons in British occupation zones of Germany and Austria would be classified for possible employment in Britain's coal mines and the industries short of manpower. Soviet Russia insists that Austria deny citizenship to Germans who entered the country after Hitler's rise to power. Soviet newspaper, *Izvestia,* charges that Canada is turning over territory and troops to the United States in preparation for aggression.

19—In a sharp note, Secretary of State Marshall defended Undersecretary Acheson's assertion that Russian policy is an aggressive and expanding one. China asks permission to peddle $200,000,000 worth of UNNRA supplies on the black market to bolster its financial structure. Before UN Security Council, Soviet advances proposals to establish a separate world convention to outlaw atomic weapons and control regulations. UN Council hears British charge that Albania had committed crime against humanity by mining Corfu Channel whereby two British destroyers were damaged, with loss of lives among British seamen.

20—Blasts near port city of Haifa rip Iraq's Petroleum Company's pipeline early in morning after a night of terror marked by explosions, mortar, and small-arms fire. Prime Minister Attlee announces that it is the definite intention of Great Britain to turn India over to responsible Indian rule by June, 1948.

22—Soviet Foreign Minister Molotov states that United States explanation of Acheson's "aggressive and expanding" branding of Russian policy remarks was not convincing and Russia still regards such remarks as hostile and slanderous. Over 600 Jewish refugees captured aboard an illegal immigrant ship attempting to run British air-sea blockade of the Palestine coast. Soviets reported as evacuating port of Dairen with a view to returning it to Chinese control.

24—Franz van Papen, ace of Hitler's diplomatic corps, sentenced by a German denazification court to eight years at hard labor. Russia reported as organizing and training Korean troops. Hoover and Hugh Gibson, former Ambassador to Belgium, returned from studying food problems in Germany and Austria. Allied police forces round up hundreds of diehard Nazis who apparently fostered a secret bacteriological weapon aimed at restoring Germany's armed might.

25—Secretary of State Marshall announces Russia has agreed to United States trusteeship over former mandated Japanese islands in the Pacific.

26—President Truman sends to U. S. Congress a bill calling for unification of armed forces under a single national defense establishment. Belgian police fire machine guns in effort to break up a demonstration of former war and political prisoners. Gromyko, delegate for Russia on the Security Council, seeks to hedge American control of former Japanese mandated islands in Pacific.

27—Truman rebukes Bevin for charging that White House stand on Palestine was based solely on politics.

28—Herbert Hoover urges that U. S. overseas relief efforts be on loan rather than gift basis. British announce agreement on a British-French treaty of alliance. Faced with domestic economy collapse, Great Britain asks United States to assume British responsibilities in Greece to forestall Russian aggression in that country. Spanish Falangists clash with monarchists in Madrid. Bomb explodes in Haifa business district as an intercepted refugee ship with 1,350 unauthorized immigrants aboard was escorted into Palestine waters.

MARCH

1—Terrific explosion wrecks British officer's club in heart of Jerusalem. Chiang Kai-shek becomes Premier of China as his brother-in-law T. V. Soong resigns in row over China's financial crisis. Two American Army officers captured and held by Chinese Communists in Manchuria.

2—British impose statutory martial law in the Measherarim Jewish district of Jerusalem.

3—President Truman makes good-neighbor visit on President Aleman of Mexico. Truman asks Congress to end draft for military service, effective March 31.

4—Secretary of State Marshall calls for immediate U. S. aid to Greece to forestall Russian menace. Britain and France sign 50-year pact against Germany. Norwegians deny Russian request for military bases on the Arctic Archipelago of Stizbergen. Stalin resigns as Minister of Armed Forces and turns job over to his principal assistant, Gen. Nikolai A. Bulganin.

5—Admiral d'Argenlieu ousted by French Cabinet as High Commissioner for Indo-China. Sir Evan Jenkins, British Governor of the Punjab, takes over the provincial government to break up communal rioting. Great Britain announces plan to reduce size of Royal Navy 60% during 1947.

6—United States Supreme Court upholds District Court's ruling against John L. Lewis and United Mine Workers Union; reduces Union fine from $3,500,000 to $700,000. Russia announces Soviet frontiers never will be thrown open to unlimited international inspection nor will Soviet factories be allowed to operate under United Nations control.

7—Polish Government accuses American Ambassador Arthur Lane of launching anti-Polish campaign in United States. Sixty Dutch Marines take physical possession of disputed American Liberty ship in Java. A Hungarian official states that Soviets did not permit Hungarian newspapers to print American note protesting Russian interference in Hungarian affairs.

8—Chinese Communists massing around naval base city of Tsingtao. Fiorello La Guardia seeks labor merger into an American Congress of Labor. Sun spots interfere with radio communications. Communist revolt flares up in Asuncion, Paraguay, resulting in death of seven persons. Dutch workmen unload confiscated cargo of American Liberty ship at Tandjongpriok, Java.

9—Russian Gen. Sviridov vetoes an American and British suggestion that a committee of Allied and Hungarian officials investigate Hungarian politicians accused of plotting against the republic.

10—Foreign Minister's Conference opens in Moscow. Molotov injects political situation in China into opening session of the Council. The Chinese nationalist government proclaims martial law to prevent rebellion in Formosa.

11—France, Great Britain, and the United States join forces to block Russia's efforts to consider Chinese conditions in Minister's conferences.

12—Speaking before a joint session of the United States Congress, President Truman asks for $400,000,000 to help Greece and Turkey. British Secretary Bevin accuses Soviet of failing to report number of German prisoners of war held outside of Germany. At a meeting of UN Security Council, coalition of nations blocks approval for a United States trusteeship over Jap-mandated islands in the Pacific.

13—Paraguayan government planes bomb rebel military objectives at Concepcion. Seven countries, including Great Britain and the United States, protest Bulgarian government's behavior towards foreign diplomats.

14—UN investigating commission fired on by guerrillas while en route through western Macedonia to Albania. The Soviet government newspaper *Izvestia* accuses the United States of interfering in the internal affairs of Greece and Turkey.

15—France proposes dispersion of Germans in order to lower the German potential. United States envoy summoned home from Turkey. Great Britain's mine-laying charges against Albania were returned to the UN Security Council for further study.

16—Jewish terrorists blow up a British post exchange store near Hadera.

17—Soviet Foreign Minister Molotov demands that the Foreign Minister's Conference allow a $10,000,000 reparation claim against Germany for the Soviet Union. General MacArthur advocates early end of the military occupation of Japan. The United States in its second note to Russian authorities in Budapest protests that minority groups, Communist-led, are threatening democracy in Hungary. British lift martial law in Jerusalem.

19—Chinese Nationalists capture evacuated Yenau, Communist capital. A new Belgian cabinet, headed by Socialist Paul-Henri Spaak and composed of Socialists and Catholic Party members, formed after the Liberals and Communists had refused to participate in a coalition government. Full-scale war threatens Paraguay as showdown looms with rebels. Soviet command in Budapest rejects American protests against Russian interference in Hungarian political affairs.

20—Secretary Marshall notifies Foreign Minister's Council that he would propose that Austria be summoned to Moscow for consultation in drafting Austrian peace treaty.

21—Bevin and Marshall present programs for organization of a federalized German nation. British and American authorities reduce shipments of German iron and steel to Soviet zone.

22—Dutch government announces agreement on American freighter *Martin Behrman* whose cargo was seized by Dutch authorities in Batavia. Greek Army launches drive against antigovernment guerrillas. Molotov proposes formation of a provisional German government with same degree of decentralization which existed before the Hitler regime. President Truman orders weeding out of all disloyal Federal workers. Greek Cabinet imposes martial law on southern tip of Greek mainland.

24—Inflation reaches danger point in Brazil.

25—Soviet informs United States it is ready to carry out its agreement to give China control of Manchurian port of Dairen.

26—Viscount Mountbatten, new Viceroy of India, invites Gandhi to New Delhi for talks on the Indian political situation. Herbert Hoover claims that Stalin could ease situation in Greece by stopping Communist guerrilla raids from Yugoslavian, Bulgarian, and Albanian territory.

27—Molotov agrees to consider a definition of German assets in Austria.

28—Council of Foreign Ministers fail to agree on question of German assets in Austria and turns whole matter back to Austrian deputies for further discussion. Russia still has 100,000 troops in Dairen and Port Arthur. Starvation reported as killing thousands of peasants in four separate regions of the Soviet Union.

31—Oil explosions in Haifa cause $4,000,000 damage.

APRIL

1—King George II of Greece dies suddenly; he is succeeded by his brother Prince Paul. Spain overwhelmingly swings parliamentary approval for a monarchy. Foreign Ministers' Council deadlocked on discussion of German reparations and industry level problems.

2—Russia, France, and China agree to a special session of the General Assembly so that UN may try to clear up the Palestine problem. British ship bombed and machine-gunned while unloading UNRRA supplies in Chinese Communist harbor of Shihkiuso.

3—Vast chains of Pacific islands used by Japs to mount attacks in Second World War officially go under United States control.

4—Soviet Foreign Minister Molotov criticizes U. S. aid to Greece.

5—Chinese Communists kill five American Marines in attack on artillery supply depot near Tangku. President Truman appoints Henry F. Grady as first American Ambassador to India.

7—Gromyko renews Russia's demand that United States scrap its atomic bombs immediately. Four powers in Foreign Ministers' Council agree that Austria must restore to Jewish and other owners property taken from them in the German control period.

8—Henry Ford dies suddenly.

11—Secretary of State Marshall calls on Russia to cooperate with United States in restoring independence of Korea. Attempts by France to get an economic merger of the Saar with France blocked by Molotov.

12—Vishinsky states that Russia will not accept a German settlement without reparations payments to Soviet Union from current production. In a speech at Manchester. England, Henry Wallace charges the United States has embarked on a program of ruthless imperialism. Milton Reynolds, Chicago pen manufacturer, takes off from La Guardia Field, N. Y., in an A-26 attack bomber in attempt to break record for round-the-world flight.

14—American members of House of Representatives press for court action against Henry Wallace for speeches abroad. British capture refugee ship *Guardian* carrying 2,400 uncertified Jewish immigrants off Tel Aviv.

15—Dr. Josef Tiso, President of Nazi puppet state of Slovakia during

Second World War, sentenced to death. Fernand de Brinon, Vichy representative in German-occupied zone of France during Second World War shot by a firing squad.

16—Council of Foreign Ministers meeting in Moscow still deadlocked over principal issues. British officials repudiate any connections with Henry Wallace's speeches. Milton Reynolds' plane reaches New York, cutting 12 hours and 19 minutes from previous unofficial record for round-the-world flight.

17—Yugoslavia demands a huge slice of Austrian Carinthia in peace settlements. Gen. Chang Chun named to head China's first coalition government.

18—Helgoland blasted by British Navy to destroy the U-boat pens and other fortifications of Hitler's North Sea Gibraltar. Jews storm British Army's leave center at Nathanya.

19—Big Four Foreign Ministers take up problem of Austrian frontiers. Failure of French grain crop forces France to cut its bread ration from 350 to 200 grams a day. Henry Wallace, speaking in Norway, criticizes Churchill for failing to fight for peace.

20—King Christian X of Denmark dies and is succeeded by his son Frederik IX.

22—Jewish terrorists blow up a British troop train southeast of Tel Aviv, killing eight persons and machine-gunning the wreckage. Russia requests resumption of talks on Korea.

24—Big Four Foreign Ministers' Council meeting adjourns in Moscow to meet in London in November.

26—Secretary Marshall returns to United States.

28—UN Assembly special session agrees to creation of a 14-nation Steering Committee to resolve demands of Arabs for immediate independence of Palestine.

29—President Aleman of Mexico welcomed by cheering thousands as he visits President Truman in Washington, D. C.

MAY

5—Parisian press assails Premier Ramadier's dismissal of Communists as motivated by "Truman Doctrine." To combat black market operation, rice rationing is initiated in Shanghai. Congressional elections in Argentine show that Peron has gained voting strength since his election to the Presidency.

6—Field Marshal Kesselring, former Nazi commander in Italy, is sentenced to death for war crimes against Italian people.

7—United States reports that, since V-E day, it has shipped 1,850,000 metric tons of food to Germany. The UN Assembly votes to offer Arabs a hearing before the 55-nation political committee with same status as the Jews.

10—Russia agrees to certain proposals of United States relative to forming a provisional Korean government. Russian demand for immediate independence of Palestine is opposed by United States. Thirty arrested in Rio de Janeiro for plotting to restore Vargas to the Presidency.

10—Two German field marshals and ten generals indicted for wartime killings in the Balkans.

12—Big Four representatives meet in Vienna to consider Austrian peace pact. The Netherlands grant recognition to West Borneo as a self-governing territory.

13—Gasperi, Premier of Italy, resigns under pressure from Socialist group.

14—Russia asks end of Britain's mandate in Palestine in favor of a dual Arab-Jewish state.

15—Both houses of Congress in United States agree on a final draft of a $400,000,000 Greek-Turkish aid bill and send it to President Truman for signature.

16—Francesco Nitti designated to form new Italian government.

17—Russia and United States at odds in battle over Slav's revolt against maintaining an international watch on Balkan frontier areas. Thousands of Chinese college students go on strike to secure higher food allowances.

20—Scientists of the world observe conditions of spectacular eclipse of sun; stations set up in advance at Bocaivu, Brazil.

22—President Truman signs $400,000,000 Greek-Turkish aid bill.

23—Balkans Investigating Commission holds Yugoslavia responsible for guerrilla warfare in Greece; asks that UN condemn Tito's activities.

26—Nicaraguan army takes over government without opposition. United States, Great Britain, Russia, and China set up plan to divide remnants of Japanese Navy among them by drawing lots.

27—Twenty-two Nazis hanged as operators of concentration camp at Manthausen.

28—Twenty-six more Nazis hanged for Manthausen outrages.

31—To satisfy Communist demands, Ferenc Nagy is replaced as Hungary Premier by Lajos Dinnyes. Premier Gasperi announces the formation of his fourth Cabinet, the first to contain no Communists or Socialists.

JUNE

3—British government announces that it will quit India this year.

6—In bluntly worded note, United States accuses Soviets of illegal interference in Hungarian affairs. Peron, Argentine President, faces opposition because of policies to restore friendly relations between Argentina and the United States.

10—Outer Mongolian troops, supported by four Soviet warplanes, invade China's Sinkiang Province. In Washington, D. C., Gerhart Eisler, Kremlin agent is found guilty of contempt of Congress, facing fine of $1,000 plus a year in jail. President Truman receives Canadian welcome as he arrives for a good-will visit.

11—Austrian Parliament rejects Communist demand that Foreign Minister Gruber's negotiations with Americans be investigated.

12—Bulgarian Grand National Assembly expels 23 legislators who formed the chief opposition to the Communists.

15—Russian commander in Budapest refuses, for the third time, American proposal for a tripartite investigation of Hungarian internal affairs.

16—President Truman vetoes Congress bill cutting down income taxes for residents of United States. Henry A. Wallace, following his anti-administration blasts in foreign capitals, returns to Washington, D. C. where he pleads the case of Russia.

20—After Congress fails to override President Truman's veto of the income tax legislation turns to consideration of Truman's veto of labor legislation.

22—Austria gets $20,000,000 aid from United States.

23—American Congress overrides President Truman's veto of Taft-Hartley labor legislation. Secretary of State Marshall urges the United States to arm the Americas rather than allow a European country to do it.

25—Provisional President Enrico de Nicola of Italy resigns. United States sharply protests arbitrary political arrests in Rumania.

27—Foreign Ministers of Britain, France, and Russia meet to draft a common response to American proposal for European economic reconstruction with American aid.

28—American State Department requests Republic of Indonesia to form an interim federal government. Chinese Nationalist forces claim destruction of 50,000 Communist troops in fighting near Szepingkai.

30—UNRRA completes its work in Europe. Plot discovered in France for "Black Maquis" to overthrow

French Republic and set up a military dictatorship. United States Government returns soft coal mines to private ownership after 13 months of Federal operation, induced by workers' strikes. Chinese Nationalist troops push Reds out of Szepingkai. President Soekarno of Indonesia calls for coalition action on United States request for establishment of an interim government for the United States of Indonesia.

JULY

2—Molotov turns down British-French proposal for obtaining American aid for Europe.

4—British House of Commons introduces bill to give freedom to people of India.

6—Britain and France rush preparations for July 12 conference on the Marshall plan of American aid to Europe.

8—Chinese Communists renew attacks in Jehol Province.

11—Greek General Staff reports beating back 4,000 guerrillas who were trying to seize territory near Albania.

12—British Foreign Secretary Bevin is elected president of Paris Conference at which delegates of 16 nations attend; Russia and eight other nations not represented. Britain and the United States reach an accord on German industry.

16—United States proposes an 11-nation conference to meet Aug. 19 to begin work on a Japanese peace treaty.

17—Poland joins Russia in blaming Greece for current Balkan disorders; calls for formation of a new coalition government in Greece.

18—The United States Army issues its first Regular Army commission to a woman, Col. Florence Blanchfield, Superintendent of Army Nurses. President signs a new Presidential succession bill whereby the current Speaker of the House of Representatives and the President *pro tempore* of the Senate follow the Vice-President in succession to the Presidency.

19—Secretary of War Patterson resigns; Kenneth C. Royall immediately appointed successor, moving up from position as Under-Secretary. Trusteeship of former Japanese islands in the Pacific assumed by the United States.

21—President Soekarno appeals for aid as Dutch attack Indonesian Republic by land, air, and sea. After new outbreak of violence in Haifa and Natanya areas, British order a dusk to dawn curfew for Jerusalem Jews.

23—Russia refuses to participate in proposed discussion of Japanese peace treaty terms scheduled for Aug. 19.

25—Bill to unify nation's armed defense sent to President Truman after both Houses of Congress pass it.

27—President Truman signs service measure and appoints James V. Forrestal to be Secretary of Defense.

28—Dutch capture virtually all coal and oil regions of eastern Sumatra.

29—British in Jerusalem hang three Jewish terrorists.

30—United States warns Russia against taking German and Italian property from Hungary, Bulgaria, and Rumania except in accordance with peace-treaty terms. Irgunists in Palestine hang two British sergeants as reprisal move.

31—Chiang Kai-shek is warned to reorganize his government and his army if he wishes to continue to receive U. S. aid. Dutch army announces capture of Malang, key city to East Central Java.

AUGUST

1—Dutch announce that they will accept United Nations mediation to end Indonesian conflict.

2—United Nations order Indonesians and Dutch to cease hostilities immediately.

5—British arrest four Palestine Jewish Mayors to try to break up terrorism.

6—Howard Hughes, aircraft builder, appears in Washington, D. C., to face senatorial committee investigating wartime plane contracts.

7—President Truman scraps army officer seniority promotion procedure by signing service merit promotion bill. UN Council sets up 7-nation unit to study all Balkan proposals.

11—Hughes probe in Washington, D. C. called off until Nov. 17. Far Eastern Commission rules that an Allied-seized stock of Japanese gold and jewels might be used to help finance a revival of Japan's peace economy.

12—All 31 defendants in war crimes trial of Buchenwald concentration camp operators convicted by a United States military court.

14—Of the 31 Buchenwald criminals, 22 are sentenced to hang, 5 get life imprisonment, 1 receives 20 year prison sentence, 2 get 15 years, and 1 is sentenced to 10 years. Communist rioting breaks out in Lahore, India, on eve of freedom.

15—India achieves independence as separate dominions of Moslem Pakistan and Hindu India. Mahomed Ali Jinnah became Governor General of Pakistan and its 70,000 Moslems; Earl Mountbatten appointed Governor General of the larger Dominion of India whose 227,000,000 inhabitants are overwhelmingly Hindu.

16—Greek Army announces sharp increase in guerrilla warfare with hundreds of villages burned and many casualties on both sides. Brazil's Foreign Minister tells the 20-nation Inter-American Conference that if it fails to set up machinery to preserve continental peace others less fitted for the job would step in. UN Economic and Social Council overrides vigorous Russian opposition to approve a draft agreement linking the International Bank for Reconstruction and Development with the UN as a specialized agency.

19—Russia demands that UN Security Council set up a commission to investigate and arbitrate Dutch-Indonesian conflict. United States lifts embargo on coal shipments to Canada.

21—Russia vetoes Italy and Austria for UN seats. Chilean Government granted extraordinary powers to cope with Communist-led illegal strikes. Paraguayan Government claims victory over rebels in civil war which began in March. American State Department tells Russia that American-British-French conferences on industry in the Ruhr will continue in spite of Soviet objection. Great Britain delivers ultimatum to 4,400 Jewish refugees off France to disembark immediately or be sent to Germany. The 20-nation conference meeting in Brazil agrees to call a special economic conference in 1948.

22—Recently passed Taft-Hartley Labor Act goes into effect; labor unrest mounts.

23—Premier Demetrios Maximos' Greek Cabinet falls. Rumanian Chamber of Deputies unanimously ratifies peace treaty.

24—Constantin Tsaldaris instructed to form a new Greek Cabinet.

26—UN Security Council calls on the Dutch and Indonesians for the second time to cease firing. U. S. Navy's jet-propelled *Skystreak* flies to a 650.6 miles per hour speed record.

29—Industrial controls in Germany amended to allow production steel on a 1936 level. United States seeks a coalition Greek Cabinet.

30—UN Special Committee on Palestine ready to recommend end of British mandate over Palestine and a split of the country between Jewish and Arab nations. Russian ratification of treaties with Axis satellite nations clears way for formal ending of hostilities for Bulgaria, Finland, Hungary, Italy and Rumania.

31—President Truman leaves for visit to Rio de Janeiro. Nineteen North and South American Republics agree to a mutual defense treaty providing collective action to block aggression against the territory of any American state.

SEPTEMBER

1—Communists win ballot count in Hungary.

3—United States charges Russia with blocking the establishment of a representative government in Bulgaria. Jewish organizations put pressure on United States to support move for a national home for Jews in Palestine.

4—British Trade Union Congress backs Bevin's policies and rejects proposal of a closer link with Russia.

5—President Truman addresses joint session of the Brazilian Congress.

6—President Truman leaves Brazil to return to the United States on the battleship *Missouri*. Gromyko reiterates Red demand for pact to ban atom bombs.

11—Egyptian crowds riot in Cairo because UN Security Council fails to order British troops out of Egypt.

12—United States promises Iran aid in resisting Red pressure for oil.

15—Previously agreed-to treaties terminating Second World War for Italy, Finland, Hungary, Bulgaria, and Rumania signed in Paris and Moscow. Slovakia arrests 80 plotting to murder President Benes and overthrow his government. The Bank of England sells gold valued at $80,000,000 to the Federal Reserve Bank of New York.

16—United Nations Assembly opens in New York for critical 1947 session. American troops stop a detachment of Yugoslav troops who sought to cross into the free territory of Trieste.

17—Hurricane lashes lower Florida, driving hundreds of thousands to public shelters. Moscow newspapers charge the United States seeks to dominate or wreck the UN. Addressing the UN assembly, Secretary Marshall challenges the UN to make a supreme effort to break the world's political and economic crisis and save Greece from the attacks of its Balkan Communist neighbors. James V. Forrestal sworn in as Secretary of Defense.

18—Vishinsky, addressing UN Assembly, charges United States with war mongering.

19—Hurricane batters New Orleans and adjacent Gulf Coast area. Indonesians reject French proposals for restoration of peace in Indo-China.

20—Fiorello H. LaGuardia, three times Mayor of New York City and former Director General of UNRRA, dies. Communists and leftist groups in Italy provoke rallies against De Gasperi's regime. British begin to withdraw last of their occupation forces from Greece.

22—Soviet Union claims to have built or be building 100 industrial centers, principally for atomic research. Arab world threatens economic and cultural break with Europe and America if UN should attempt to partition Palestine.

23—Nikola Petkov, peasant leader and foe of the Communist Party, hanged in Sofia, Bulgaria. Andrei Vishinsky charges that Secretary Marshall gave an incorrect explanation of the big power deadlock over Korean independence. United States demands return of three American soldiers taken captive by Yugoslavs.

26—A band of Hebrew-speaking gunmen killed four British constables on the streets of Tel Aviv, stealing $180,000 in a daring daylight bank robbery. Russia proposes simultaneous removal of all Russian and American troops in Korea.

27—Three captive American soldiers

released unharmed by Yugoslavs in Trieste.

29—Jewish underground agents blast police station in Haifa killing 10 persons and injuring 77.

30—Argentina and Canada are elected by UN Assembly to seats on the Security Council. Pakistan and Yemen accepted as members of the UN.

OCTOBER

1—In a drive to help hungry nations, President Truman calls on United States to save 100,000,000 bushels of grain.

3—An estimated 1,500,000 Arabs closed in a general strike against proposed partition of the Holy Land. The Big Four deputies of the UN meet in London to consider future of the Italian colonies in Africa.

6—President Truman sets up meatless and no-poultry days as part of self-denial offensive against hunger in western Europe. Communists announce formation of new Comintern including Russia, France, Italy, Czechoslovakia, Poland, Rumania, Bulgaria, Yugoslavia, and Hungary to battle "imperialism" of the United States.

7—Hanns Eisler and his wife, Louise, arrested in Los Angeles and held for deportation on charges of entering the United States illegally and denying that he was a member of the Communist Party. A skymaster plane of the U. S. Army Air Force completed its homing flight from England to the United States guided entirely by the "mechanical brain" which had piloted it safely from the United States to England, two weeks previously.

9—U. S. Navy announces recorded speeds in excess of 1,400 miles an hour in ram-jet engine planes.

11—The United States accepts in principle proposal for partition of Palestine into Jewish and Arab nations. Yugoslavia breaks off diplomatic relations with Chile.

13—Russia's Vishinsky presses Soviet demands that all foreign troops be immediately withdrawn from Greece. Florida area devastated by a second hurricane.

19—Russia and satellites boycott the first test vote on Secretary Marshall's proposal to overhaul UN machinery.

20—Reports from Sunday general elections in France indicate that the De Gaullists top Communists and other parties. U. S. House of Representatives Committee on Un-American Activities begins hearings to ferret out Communists in Hollywood.

21—Brazil and Chile sever diplomatic relations with Russia.

22—French Cabinet quits; Socialist Premier Ramadier attempts to form new Ministry. Soviet announces to nine nations of Poland Conference that it will work to defeat the Marshall Plan.

25—Severe fighting breaks out along western border of Kashmir State; Moslems there reported in revolt through possibility that the states Hindu Maharajah might decide to join the Dominion of India. President Truman calls special session of Congress for Nov. 17 to deal with the high cost of living at home and the need for extending relief abroad.

27—De Gaulle calls for dissolution of France's National Assembly and the holding of new general election.

29—United States and Great Britain conclude trade pacts at Geneva for tariff reductions; 15 nations involved.

30—Premier Ramadier of France wins confidence vote by slim margin of 24 votes.

NOVEMBER

1—Armed Pathan Moslems advance into state of Kashmir in sufficient strength to threaten its capital Srinagar. Strong earthquake rocks Lima, Peru.

2—Congressional Committee seeking Communistic data from Hollywood film stars, cites 10 witnesses for contempt of Congress. Howard Hughes takes his 400,000-pound flying boat into the air for its first trial flight.

3—Mikolajczyk arrives in England by plane after crossing Red zone of Germany. Russia rejects American suggestions on methods of partitioning Palestine, demanding that British end their mandate over the Holy Land by Jan. 1, 1948 and withdraw all troops no later than May 1, 1948.

5—Kashmir Valley reported as swarming with Moslems; sharp fighting near Srinagar. Major battle raging between two Chinese armies in southwestern Manchuria.

6—Klement Gottwald, Communist, wins post of Premier in Czechoslovakia. In Moscow, Molotov announces that the secret of the atom bomb has long ceased to exist.

8—Typhoon wrecks northern Luzon. Hindu plan to invade Hyderabad is reported; aim is to bring this rich state into the Dominion of India.

10—Russia faces crisis as satellite countries lag in oil production.

12—Gen. Charles de Gaulle urges France to form alliances with the United States and Great Britain to combat influence of Soviet Russia. Three young Jews, Irgun suspects, killed in Palestine in gun battle with British troops.

13—Troops called out in Marseilles to patrol the streets as Communist labor leaders issue a general strike call after a day of rioting. Italian police fire on Communist demonstrators as wave of political turmoil spreads southward.

14—Gunman attack meeting of Reds in Marseilles. Palestine terrorists kill two in Jerusalem and two in Tel Aviv. Britain's Chancellor of Exchequer Dalton forced to resign because of releasing budget data to newspapers prematurely.

15—Chinese Communists drive north and west towards Paoting, capital of Hopeh Province. French Reds assail Premier Ramadier for policies increasing prices. Marseilles crippled by strike of 60,000 Communist-led workers.

16—Italian Reds promise to call off strikes and riots if the non-Communistic government will suppress "neo-Fascism."

17—President Truman opens special session of Congress to consider provision of stop-gap aid to Europe and also to provide means of reducing high cost of living in the United States.

18—Industry in France faces paralysis as 114,000 coal miners threaten to strike. United States Army officers to act as advisers to Greeks on all military phases. Most powerful cyclotron at University of California produces streams of 380,000,000 volt bullets capable of passing through the densest form of matter, the nucleus of an atom, like light through a window.

19—Arabs challenge the authority of UN to partition Palestine.

20—Princess Elizabeth of England and Philip Mountbatten, Duke of Edinburgh, married in Westminster Abbey. French Army recalls 140,000 to the colors in face of growing strike crisis. Secretary of State Marshall leaves Washington, D. C. to attend Big Four Foreign Ministers' meeting in London.

21—President Truman names Gen. Omar Bradley to succeed General Eisenhower as Chief of Staff when latter's resignation becomes effective. Carl R. Gray, veteran of both World Wars and now President of Chicago and Northwestern Railroad, named to succeed Bradley in Veterans Administration. Great Britain refuses to share responsibility for Palestine partition mandate with UN Commission.

22—Russia accuses Western Allies administration of violating Yalta and Potsdam agreements as regards denazification, demilitarization, and reparations. France rejects Leon Blum and turns to Robert Schuman, Finance Minister, to form a new Cabinet. United States Senate War Investigating Subcommittee closes hearings on Gen. Bennett E. Meyers and turns findings over to Attorney General Clark for possible prosecution on grounds of perjury, corruption, and fraud.

24—Premier Schuman announces formation of new French coalition Cabinet. Russia charges Britain with trying to prevent solution of the Palestine problem.

25—Foreign Ministers of the United States, Great Britain, Russia, and France meet in London to begin second attempt to frame a peace treaty for Germany. National Federation of Railroad Workers calls general rail strike in France.

26—France ousts 19 Russians for labor crisis interference; police and strikers battle in streets of Lyons.

28—France calls 80,000 more troops to the colors to combat spread of Red strikes.

29—Former Premier Nitti warns Italian Assembly that civil war threatens Italy. Partitioning of Palestine into Jewish and Arab countries approved by a vote of 33 to 13 in the United Nations Assembly.

30—French government and Labor Party deadlocked in struggle to end strikes.

DECEMBER

1—Holy Land Arabs call a three-day general strike after UN partition decision; Arab demonstrations staged in Cairo; U. S. Legation in Damascus stoned. French labor unions, dominated by Communists, defy Premier Schuman's strike curbs.

2—Arabs storm through Jerusalem, wrecking and burning shops; Jews counterattack in bloody fighting.

4—Street fighting flares in Ramle, on the Tel Aviv—Jerusalem road, as Arab fury mounts against partition of Palestine.

5—Government clerks on strike in France; power plants, subways, and general communications lines hard hit; Minister of Interior authorizes French police to fire on mobs. Fires sweep out of control in Arab attack on all-Jewish Tel Aviv.

6—French upper Legislative Chamber approves Premier Schuman's drastic anti-strike, anti-sabotage law. Communist-led Rome workers give Italian government three days to accede to their demands for employment and for punishment of police who allegedly fired on street mobs. Finland's municipal elections indicate trend to the right.

7—Leaders of the seven governments in the Arab Leagues in Cairo for a council meeting to decide on the Arab high command in case of war. Many French workers return to work as Schuman gains control.

8—Mob of 50,000 Italians, carrying the body of a riot victim, parade the streets of Rome in protest against de Gasperi's government. Jews and Arabs step up military mobilization.

9—Communist French General Confederation of Labor orders 2,000,000 strikers back to work, a victory for Premier Schuman's stern and effective measures.

10—Five members of a French reparations mission ordered out of Russia in reprisal for French ordering Russian reparations mission out of France, having charged them with subversive activities. Secretary of State Marshall charges that Russia is taking assets from eastern Germany at a rate of more than $500,000,000 yearly.

11—Jews and Arabs battle in Jerusalem. Armed troops move into Rome to help police keep order.

13—Earl Baldwin, thrice Prime Minister of Great Britain, dies.

14—Last American troops sail from Italy.

15—Moving to check inflation, Russia abandons rationing and reduces its paper rubles to one-tenth of their previous value. Big Four Foreign Ministers' Conference in London breaks up in complete failure.

19—Congress of United States passes anti-inflation bill. Secretary Marshall returns from London. Large group of French General Confederation of Labor members votes against Communists in their organization. Rumania and Yugoslavia sign a mutual assistance pact.

24—Secretary of Agriculture Anderson reveals names of Federal job holders who have been speculating in commodity markets. Greek guerrillas under leadership of Gen. Markos Vifiades proclaim a Communist government in northern Greece. United States begins evacuation of 14 Panama military bases, thus abandoning a controversy with the Panama Government over continued use of these bases for defense of the Canal.

25—Fighting rages over wide area in southern Manchuria; Communists capture Liaochung. In Palestine, 19 die and 57 are wounded in Christmas fighting.

26—Savage typhoon does heavy damage in the Philippines; worst snow storm in 60 years cripples New York City. Greek guerrilla forces open heavy attacks south of Albanian border; French Communists promise to support General Vifiades Red rule in Greece.

28—Victor Emmanuel III, ex-King of Italy, dies in Egypt.

29—Relief column of Greek regular troops drives through guerrilla forces to aid city of Konitsa. Henry A. Wallace announces his candidacy for President of the United States on a third party ticket; Moscow immediately endorses him.

30—King Michael I of Rumania abdicates; Communist-dominated Cabinet immediately proclaims Rumania a popular democratic republic. Jewish-Arab rioting at Haifa oil refinery results in 47 deaths.

31—Chiang Kai-shek charges that Russia is aiding Chinese Reds. Secretary of State George C. Marshall is named as "Man of the Year" in the United States.

PERIODICAL PUBLICATIONS

American Journal of International Law
700 Jackson Place N.W., Washington, D. C.

Current History
135 S. Second St., Philadelphia.

Foreign Affairs
58 East 68 St., New York City.

Foreign Policy Bulletin
22 East 38th Street, New York City.

Foreign Policy Reports
22 East 38th Street, New York City.

International Conciliation
405 West 117th Street, New York City.

Pacific Affairs
1 East 54th Street, New York City.

Pan-American Union Bulletin
Pan-American Union, Washington, D. C.

Time Weekly Newsmagazine (The)
9 Rockefeller Plaza, New York City.

United States Bulletin
State Department, Washington, D. C.

World Affairs
734 Jackson Place, Washington, D. C.

World Report
1253 24th St., N.W., Washington 7, D. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

Academy of Political Science, Fayerweather Hall, Columbia University, New York City.
American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.
American Arbitration Association, 9 Rockefeller Plaza, New York City.
American Association for the United Nations, 45 E. 65 St., New York City.
American Peace Society, 734 Jackson Place, Washington, D. C.
American Political Science Association, 105 Harris Hall, Northwestern University, Evanston, Ill.
American Society of International Law, 700 Jackson Place, N.W., Washington, D. C.
Carnegie Endowment for International Peace, 700 Jackson Place, N.W., Washington, D. C.
Council on Foreign Relations, Inc., 58 E. 68 St., New York City.
Council on World Affairs, Society for Savings Building, Cleveland, O.
Foreign Policy Assn., 22 East 38th Street, New York City.
International Reform Federation, 134 B St., N.E., Washington, D. C
National Council for Prevention of War, 532 17th St., N.W., Washington, D. C.
People's Lobby, Inc., 1410 H Street, N.W., Washington, D. C.
Women's International League for Peace and Freedom, U. S. Section, 1734 F Street, N.W., Washington, D. C.
World Peace Foundation, 40 Mount Vernon St., Boston, Mass.

REGIONAL

American Asiatic Assn., 1 Hanover Square, New York City.
China Society of America, 570 Lexington Ave., New York City.
Committee on Cooperation in Latin America, 156 Fifth Ave., New York City.
English-Speaking Union; 19 E. 54th Street, New York City.
Far East Conference, 11 Broadway, New York City.
French Institute in the United States, 22 East 60th St., New York City.
Netherland-America Foundation Inc., 10 Rockefeller Plaza, New York City.
Panamerican Society, Inc., The, 630 Fifth Ave., New York City.
Pan-Pacific Union, Inc., 1023 Alakea St., Honolulu, Hawaii.

PART TWO

AMERICAN GOVERNMENT

DIVISION III

THE NATIONAL GOVERNMENT

FEDERAL ADMINISTRATIVE ORGANIZATION

By William M. Schuyler
Editor, *The American Year Book*

THE PRESIDENT AND VICE PRESIDENT

President.—Harry S. Truman of Missouri (Democrat). Sworn into office as President of the United States, April 12, 1945, in succession to Franklin Delano Roosevelt, deceased.

Vice President.—Vacant.

Executive Office of the President.—White House Office—Matthew J. Connelly (Mass.), Charles G. Ross (Mo.), and William D. Hassett (Vt.), Secretaries.

Special Assistant to the President—John R. Steelman.

Special Counsel to the President—Clark M. Clifford.

Administrative Assistants to the President.—David K. Niles, Charles S. Murphy, and Donald S. Dawson.

Executive Clerk in Charge of the White House Executive Offices—Maurice C. Latta.

Executive Clerk—William J. Hopkins.

Liaison Officer—Donald S. Dawson.

Chief of Staff to the Commander in Chief of the Armed Forces of the United States.—Fleet Admiral William D. Leahy.

Military Aide to the President.—Major Gen. Harry H. Vaughan.

Naval Aide to the President.—Rear Admiral James H. Foskett.

Bureau of the Budget—James E. Webb, Director.

Council of Economic Advisers—Edwin G. Nourse, Chairman.

Office of Defense Transportation—J. M. Johnson, Director.

Federal Board of Hospitalization—James E. Webb, Chairman.

Philippine Alien Property Administration—James McI. Henderson, Administrator.

National Security Council—Sidney W. Souers, Executive Secretary.

Office of Selective Service Records—Major Gen. Lewis B. Hershey, Director.

War Assets Administration—Jess Larson (Acting), Administrator.

United Nations—Trygve Lie, Secretary General.

United Nations Relief and Rehabilitation Administration—Lowell W. Rooks, Director General.

Presidential Vacancy.—By Act of Congress, in the case of vacancy occurring in the office of President through the death or removal of both the President and Vice President, the Speaker of the House of Representatives and the President *pro tempore* of the Senate shall succeed in that order, to be followed by Cabinet Officers in the order indicated in the arrangement of the following summary of the executive departments:

DEPARTMENT OF STATE

Secretary of State.—George C. Marshall.

Under Secretary of State.—Robert A. Lovett.

Under Secretary of State for Economic Affairs.—Vacant.

Assistant Secretary of State for European, Far Eastern, Near Eastern, and African Affairs.—Vacant.

Assistant Secretary of State for Administration.—John E. Penrifoy.

Assistant Secretary of State for Public Affairs.—Vacant.

Assistant Secretary of State for Occupied Areas.—Charles E. Saltzman.

Assistant Secretary of State for Economic Affairs.—Willard L. Thorp.

Legal Adviser.—Ernest A. Gross.

Special Assistant to the Secretary for Press Relations.—Michael J. McDermott.

Director General of the Foreign Service.—C. M. Ravndal.

Assistant Secretary of State.—Garrison Norton.

Assistant Secretary of State for Political Affairs.—Norman Armour.

Offices and Their Directors.—European Affairs, John D. Hickerson; Far Eastern Affairs, W. Walton Butterworth; Near Eastern and African Affairs, Loy W. Henderson; American Republic Affairs, Paul C. Daniels; Special Political Affairs, Dean Rusk; International Trade Policy, Clair Wilcox; Financial and Development Policy, Norman T. Ness; Foreign Liquidation Commissioner, Major Gen. Donald H. Connolly; Transport and Communications, Walter A. Radius; Public Affairs, Francis H. Russell; Information and Educational Exchange, William T. Stone; Foreign Service, H. P. Martin; Departmental Administration, Walter K. Scott; Budget and Planning, William O. Hall; Controls, Hamilton Robinson; Intelligence Research, Allan Evans; Intelligence Collection and Dissemination, George R. Fearing, Jr.

DEPARTMENT OF THE TREASURY

Secretary of the Treasury.—John W. Snyder.

Charged with the management of the national finances; prepares plans for the improvement of the revenue and support of the public credit; superintends collection of the moneys paid from and into the Treasury; controls construction of public buildings, coinage and printing of money, *ex officio* chairman of the Federal Reserve Board.

Under Secretary of the Treasury.—A. Lee M. Wiggins.

Assistant Secretary of the Treasury.—Vacant.

Fiscal Assistant Secretary of the Treasury.—Edward F. Bartelt.

Special Assistant to the Secretary.—Andrew N. Overby.

Assistants to the Secretary.—Vernon L. Clark and Arthur Gardner.

Budget Officer.—Willard L. Johnson.

General Counsel.—Thomas J. Lynch, Acting.

U. S. Secret Service.—James J. Maloney, Chief.

Director of Public Relations.—Charles P. Shaeffer.

Administrative Assistant to the Secretary.—William W. Parsons.

Commissioner of the Public Debt Service.—Edwin L. Kilby.

Commissioner of Accounts.—Robert W. Maxwell.

Director of Foreign Funds Control.—John S. Richards.

Director of International Finance.—Frank A. Southard, Jr.

Director of the Technical Staff.—George C. Haas.

Director of Tax Research.—Louis Shere, Acting.

Comptroller of the Currency.—Preston Delano.

Has supervision of the national banks, their examination and reports; preparation and issue of national bank circulation; redemption and destruction of national bank notes. *Ex officio* member of the Federal Reserve Board.

Treasurer of the United States.—William A. Julian.

Charged with the receipts and disbursement of all public moneys deposited in the Treasury and Sub-Treasuries and in national banks depositories.

Commissioner of the Bureau of Customs.—Frank Dow, Acting.

Commissioner of the Bureau of Internal Revenue.—George J. Schoeneman.

Charged with general supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue laws.

Director of the Bureau of the Mint.—Nellie Tayloe Ross.

Has general supervision of the mints and assay offices.

Commissioner of Narcotics.—H. J. Anslinger.

Director of the Bureau of Engraving and Printing.—Alvin W. Hall.

Produces all the securities and similar work of the Government printed from steel plates.

Director of Federal Supply.—Clifton E. Mack.

United States Coast Guard.—Admiral Joseph F. Farley, Commandant.

Committee on Practice.—John L. Graves, Chairman.

U. S. Savings Bonds Division.—Vernon L. Clark, National Director.

NATIONAL MILITARY ESTABLISHMENT

Secretary of Defense.—James Forrestal.

Special Assistants to the Secretary of Defense.—Marx Leva; W. J. McNeil; John H. Ohly.

Chief of Staff, U. S. Army—General Omar N. Bradley.

Chief of Naval Operations.—Admiral Louis E. Denfeld.

Chief of Staff, U. S. Air Force.—General Carl Spaatz.

Munitions Board.—Thomas J. Hargrave.

Research and Development.—Dr. Vannevar Bush, Chairman.

Department of the Army.—Kenneth C. Royall, Secretary.

Under Secretary of the Army.—William H. Draper, Jr.

Assistant Secretary of the Army.—Gordon Gray.

Army Ground Force.—Gen. Jacob L. Devers, Commanding General.

Commanding General, Military District of Washington.—Brig. Gen. Hobart R. Gay.

Department of the Navy.—John L. Sullivan, Secretary.

Under Secretary of the Navy.—W. John Kenney.

Assistant Secretary of the Navy for Air.—John N. Brown.

Executive office of the Secretary.—J. S. Davitt, Administrative Officer.

Bureau of Aeronautics.—Rear Adm. A. M. Pride, Chief.

Bureau of Medicine and Surgery.—Rear Adm. C. A. Swanson, Surgeon General.

Bureau of Naval Personnel.—Rear Adm. Thomas L. Sprague, Chief.

Bureau of Ordnance.—Rear Adm. A. G. Noble, Chief.

Bureau of Ships.—Vice Adm. Earle W. Mills, Chief.

Bureau of Supplies and Accounts.—Rear Adm. Walter A. Buck, Chief.

Bureau of Yards and Docks.—Rear Adm. John J. Manning, Chief.

Department of the Air Force.—W. Stuart Symington, Secretary.

Under Secretary of the Air Force.—Arthur S. Barrows.

Assistant Secretaries of the Air Force.—Cornelius V. Whitney; Eugene M. Zuckert.

DEPARTMENT OF JUSTICE

Attorney General.—Tom C. Clark.

Represents the United States in all legal matters.

Solicitor General.—Philip B. Perlman.

Assistant to the Attorney General.—Vacant.

Assistant Attorneys General.—John F. Sonnett, Theron Lamar Caudle, David L. Bazelon, A. Devitt Vanech, Peyton Ford, and T. Vincent Quinn.

Immigration and Naturalization Service.—Watson B. Miller, Commissioner.

Director of the Federal Bureau of Investigation.—J. Edgar Hoover.

Director of the Bureau of Prisons.—James V. Bennett.

Administrative Assistant to the Attorney General.—Salvator A. Andretta.

Director of Public Relations.—Vacant.

Chief of the Division of Accounts.—Eugene J. Matchett.

Chief Clerk.—Harvey C. Donaldson.

Pardon Attorney.—Daniel M. Lyons.

Board of Parole.—Daniel M. Lyons, Fred S. Rogers, and Boleslau J. Monkiewicz.

Board of Immigration Appeals.—Thomas G. Finucane, Chairman.

POST OFFICE DEPARTMENT

Postmaster General.—Jesse M. Donaldson.

Executive Assistant to the Postmaster General.—Frank Pace, Jr.

Special Assistant to the Postmaster General.—Samuel R. Young.

First Assistant Postmaster General.—Vacant.

Second Assistant Postmaster General.—Paul Piken.

Third Assistant Postmaster General.—Joseph J. Lawler.

Fourth Assistant Postmaster General.—Walter Myers.

Director of Parcel Post.—Edward R. Jones, Acting.

Director of Budget and Administrative Planning.—Joseph F. Gartland.

Chief Clerk and Director of Personnel.—Edgar B. Jackson.

Solicitor.—Frank J. Delany.

Chief Post Office Inspector.—James J. Doran.

Comptroller.—John J. Haggerty.

DEPARTMENT OF THE INTERIOR

Secretary of the Interior.—Julius A. Krug.

Charged with pensions, public lands, Indian Affairs, geological surveys, reclamation of arid lands, and mines.

Under Secretary.—Oscar L. Chapman.

Assistant Secretaries.—William E. Warne and C. Girard Davidson.

Special Assistant to the Secretary.—William H. McCrillis.

Assistant to the Secretary.—Charles H. Alldredge.

Assistant to the Secretary in Charge of Land Utilization.—Lee Muck.

Budget Officer.—Vernon D. Northrop.

Chief Clerk.—Floyd E. Dotson.

Director of Information.—Carlton Skinner.

Solicitor.—Martin G. White.

Bureau of Land Management.—Fred W. Johnson, Director.

Fish and Wildlife Service.—Albert M. Day, Director.

Commissioner of Indian Affairs.—William A. Brophy.

Indian Arts and Crafts Board.—René d'Harnoncourt, Chairman.

Director of the Geological Survey.—William Embry Wrather.

Commissioner of Reclamation.—Michael W. Straus.

Director of the National Park Service.—Newton B. Drury.

Director of the Bureau of Mines.—James Boyd.

Division of Territories and Island Possessions.—James P. Davis, Director.

Territorial Officials.—

Alaska—Ernest Gruening, Governor.

Hawaii—Ingram M. Stainback, Governor.

Virgin Islands—William Henry Hastie, Governor.

Puerto Rico—Jesús T. Piñero, Governor.

Puerto Rico Reconstruction Administration.—James P. Davis, Administrator.

The Alaska Railroad.—Col. John P. Johnson, General Manager.

Solid Fuels Administration for War.—Julius A. Krug, Administrator.

Division of Power.—Walton Seymour, Director.

National Power Policy Committee.—Julius A. Krug, Chairman.

DEPARTMENT OF AGRICULTURE

Secretary of Agriculture.—Clinton P. Anderson.

Under Secretary.—N. E. Dodd.

Assistant Secretary.—Charles F. Brannan.

Assistants to the Secretary.—William A. Minor, Joseph L. Orr, and E. J. Overby.

Director of Extension Work.—Milburn L. Wilson.

Agricultural Research Administration.—W. V. Lambert, Administrator.

Director of Personnel.—T. Roy Reid.

Director of Information.—Keith Himebaugh.

Director of Finance and Budget Officer.—W. A. Jump.

Office of Plant and Operations.—Arthur B. Thatcher, Chief.

Solicitor.—W. Carroll Hunter.

Librarian.—Ralph R. Shaw.

Office of Foreign Agricultural Relations.—Leslie A. Wheeler, Director.

Bureau of Animal Industry.—B. T. Simms, Chief.

Bureau of Diary Industry.—O. E. Reed, Chief.

Bureau of Plant Industry, Soils and Agricultural Engineering.—R. M. Salter, Chief.

Production and Marketing Administration.—Jesse B. Gilmer, Acting Administrator.

Forest Service.—L. F. Watts, Chief.

Bureau of Agricultural and Industrial Chemistry.—L. B. Howard, Chief.

Bureau of Agricultural Economics.—O. V. Wells, Chief.

Bureau of Entomology and Plant Quarantine.—P. N. Annand, Chief.

Bureau of Human Nutrition and Home Economics.—Hazel K. Stiebeling, Chief.

Commodity Credit Corporation.—Jesse B. Gilmer, Acting President.

Soil Conservation Service.—H. H. Bennett, Chief.

Farm Credit Administration.—I. W. Duggan, Governor.

Federal Crop Insurance Corporation.—Gus Geissler, Manager.

Rural Electrification Administration.—Claude R. Wickard, Administrator.

DEPARTMENT OF COMMERCE

Secretary of Commerce.—W. Averell Harriman.

Under Secretary.—William C. Foster.

Assistant Secretary.—David K. E. Bruce.

Assistant to the Secretary.—Nelson Newton.

Executive Assistant to the Secretary.—Bernard L. Gladieux.

Solicitor.—Adrian Fisher.

Director of the Office of Technical Services.—John C. Green.

Director of the Office of Publications.—Donald R. Burgess, Acting.

Director of the Bureau of The Census.—James C. Capt.

Civil Aeronautics Administration.—Theodore P. Wright, Administrator.

Director of the Bureau of Foreign and Domestic Commerce.—Amos E. Taylor.

Director of the National Bureau of Standards.—E. U. Condon.

Director of the Coast and Geodetic Survey.—Rear Admiral L. O. Colbert.

Commissioner of Patents.—Lawrence C. Kingsland.

Inland Waterways Corporation.—South Trimble, Jr., Chairman.

Weather Bureau.—Francis W. Reichelderfer, Chief.

National Inventors' Council.—Charles F. Kettering, Chairman.

Office of International Trade.—Thomas C. Blaisdell Jr., Director.

DEPARTMENT OF LABOR

Secretary of Labor.—Lewis B. Schwellenbach.

Charged with the duty of fostering, promoting, and developing the welfare of the wage earners of the United States and also working towards a solution of labor problems.

Administrative Officer.—Ambrose R. J. Marsden.

Under Secretary of Labor.—David A. Morse.

Assistant Secretaries of Labor.—John W. Gibson and John T. Kmetz.

Special Assistants to the Secretary.—Kenneth C. Robertson and Charles W. Straub.

Solicitor.—William S. Tyson, Acting.

Chief Clerk and Budget Officer.—James E. Dodson.

Director of Information.—Herbert Little.

Director, Office of International Labor Affairs.—Philip Kaiser.

Director of Labor Standards.—William L. Connolly.

Commissioner of Labor Statistics.—Ewan Clague.

Director of the Women's Bureau.—Frieda S. Miller.

Wage and Hour and Public Contracts Division.—W. R. McComb, Administrator.

Apprentice Training Service.—William F. Patterson, Director.

United States Employment Service.—Robert C. Goodwin, Director.

Veterans' Reemployment Rights Division.—Robert K. Salyers.

Wage Analysis Branch.—Harry M. Douty.

INDEPENDENT OFFICES, AGENCIES, AND ESTABLISHMENTS

Civil Service Commission.—Harry B. Mitchell, President; Mrs. Frances Perkins, Arthur S. Flemming.

Interstate Commerce Commission.—William E. Lee, Chairman; John L. Rogers, J. Haden Alldredge, Clyde B. Aitchison, Charles D. Mahaffie, Walter M. W. Splawn, Carroll Miller, William J. Patterson, J. Monroe Johnson, George M. Barnard, Richard F. Mitchell.

United States Atomic Energy Commission.—David E. Lilienthal, Chairman.

Civil Aeronautics Board.—Chairman.

District of Columbia.—John Russell Young, President of the Board.

Federal Reserve Board.—Thomas Bayard McCabe, Chairman; Marriner S. Eccles, Vice Chairman; M. S. Szymczak, James K. Vardaman, Jr., Ernest G. Draper, and Rudolph M. Evans, Lawrence Clayton.

Export-Import Bank of Washington.—William McC. Martin, Jr., Chairman and President.

Federal Trade Commission.—Robert E. Freer, Chairman; Ewin L. Davis, Lowell B. Mason, Garland S. Ferguson, William A. Ayres; Otis B. Johnson, Secretary.

United States Tariff Commission.—Oscar B. Ryder, Chairman; Lynn R. Edminster, Vice Chairman; Edgar B. Brossard, E. Dana Durand, George McGill, John P. Gregg; Sidney Morgan, Secretary.

Housing Expediter.—Tighe E. Woods, Acting.

Federal Housing Administration.—Franklin D. Richards, Commissioner.

Federal Home Loan Bank Board.—John H. Fahey, Chairman.

Federal Public Housing Administration.—Dillon S. Myer, Commissioner.

Federal Power Commission.—Nelson Lee Smith, Chairman; Harrington Wimberly, Vice Chairman; Claude L. Draper, Leland Olds.

Federal Communications Commission.—Vacant.

Veterans' Administration.—Major Gen. Carl R. Gray, Administrator.

United States Maritime Commission.—Vice Admiral William W. Smith, Chairman.

Governor of the Panama Canal.—Brig. Gen. Joseph C. Mehaffey.

National Labor Relations Board.—Paul M. Herzog, Chairman.

National Advisory Committee for Aeronautics.—Dr. Jerome C. Hunsaker, Chairman.

The Commission of Fine Arts.—Gilmore D. Clarke, Chairman.

National Mediation Board.—Frank P. Douglass, Chairman.

National Capital Park and Planning Commission.—Major Gen. U. S. Grant 3rd, Chairman.

Smithsonian Institution.—

Established 1846 under the terms of the will of James Smithson for the "increase and diffusion of knowledge among men." The former aim is accomplished by the promoting of original, scientific research, and the latter by publications and lectures. The affairs of the Institution are managed by a Board of Regents which cooperates with the Government and with National scientific bodies. Under the direction of the Institution are the National Museum, charged with preserving and utilizing objects of art and ethnological, geological, and mineralogical collections belonging to the United States; Bureau of American Ethnology, National Gallery of Art, Freer Gallery of Art, National Zoological Park, Astrophysical Observatory, and the Regional Bureau for the United States International Catalogue of Scientific Literatures.

Secretary, Alexander Wetmore.

National Gallery of Art.—Samuel H. Kress, President; Huntington Cairns, Secretary-Treasurer.

National Academy of Sciences.—Alfred N. Richards, President; Luther P. Eisenhart, Vice President; Fred. E. Wright, Home Secretary; Detlev W. Bronk, Foreign Secretary.

Pan American Union.—Alberto Lleras, Director General.

Pan American Sanitary Bureau.—Dr. Fred L. Soper, Director.

American National Red Cross.—Basil O'Connor, Chairman.

Permanent Joint Board on Defense.—Dean Acheson, Chairman.

Housing and Home Finance Agency.—Raymond M. Foley, Administrator.

Reconstruction Finance Corporation.—John D. Goodloe, Chairman.

Securities and Exchange Commission.—James J. Caffrey, Chairman.

Tennessee Valley Authority.—Gordon R. Clapp, Chairman; Harcourt A. Morgan, James P. Pope.

Federal Deposit Insurance Corporation.—Maple T. Harl, Chairman.

Federal Mediation and Conciliation Service.—Cyrus S. Ching, Director.

Railroad Retirement Board.—William J. Kennedy, Chairman.

The National Archives.—Solon J. Buck, Archivist.

Federal Security Agency.—Oscar R. Ewing, Administrator.

Social Security Administration—Arthur J. Altmeyer, Commissioner.

Public Health Service—Thomas Parran, Surgeon General.

U. S. Office of Education—John W. Studebaker, Commissioner.

Office of Vocational Rehabilitation—Michael J. Shortley, Director.

Food and Drug Administration—Paul B. Dunbar, Commissioner.

Federal Works Agency.—Major Gen. Philip B. Fleming, Administrator.

Public Roads Administration—Thomas H. MacDonald, Commissioner.

Public Buildings Administration—W. E. Reynolds, Commissioner.

Federal Fire Council—W. E. Reynolds, Chairman.

Bureau of Community Facilities—George H. Field, Commissioner.

MEMBERS OF THE SENATE

COMPILED FROM THE CONGRESSIONAL DIRECTORY, YEAR 1948

Dates show beginning of service in the Senate. Names of Republicans are in Roman type; those of Democrats in *Italics;* American Labor in ROMAN CAPS; Progressive in small caps.

ALABAMA

Lister Hill (1938)
John J. Sparkman (1947)

ARIZONA

Carl Hayden (1926)
Ernest W. McFarland (1940)

ARKANSAS

John L. McClellan (1942)
J. William Fulbright (1944)

CALIFORNIA

Sheridan Downey (1938)
William F. Knowland (1945)

COLORADO

Edwin C. Johnson (1936)
Eugene D. Millikin (1941)

CONNECTICUT

Brien McMahon (1944)
Raymond E. Baldwin (1947)

DELAWARE

C. Douglass Buck (1942)
John J. Williams (1947)

FLORIDA

Claude Pepper (1936)
Spessard L. Holland (1947)

GEORGIA

Walter F. George (1922)
Richard B. Russell (1933)

IDAHO

Glen H. Taylor (1944)
Henry C. Dworshak (1947)

ILLINOIS

Scott W. Lucas (1938)
C. Wayland Brooks (1940)

INDIANA

Homer E. Capehart (1944)
William E. Jenner (1947)

IOWA

George A. Wilson (1942)
Bourke B. Hickenlooper (1944)

KANSAS

Arthur Capper (1918)
Clyde M. Reed (1938)

KENTUCKY

Alben W. Barkley (1927)
John Sherman Cooper (1947)

LOUISIANA

John H. Overton (1932)
Allen J. Ellender (1936)

MAINE

Wallace H. White, Jr. (1930)
Owen Brewster (1940)

MARYLAND

Millard E. Tydings (1926)
Herbert R. O'Conor (1947)

MASSACHUSETTS

Leverett Saltonstall (1944)
Henry Cabot Lodge (1947)

MICHIGAN

Arthur H. Vandenberg (1928)
Homer Ferguson (1942)

MINNESOTA

Joseph H. Ball (1940)
Edward J. Thye (1947)

MISSISSIPPI

James O. Eastland (1941)
John C. Stennis (1947)

MISSOURI

Forrest C. Donnell (1944)
James P. Kem (1947)

MONTANA

James E. Murray (1934)
Zales N. Ecton (1947)

NEBRASKA

Hugh Butler (1941)
Kenneth S. Wherry (1942)

NEVADA

Patrick A. McCarran (1932)
George W. Malone (1947)

NEW HAMPSHIRE

Styles Bridges (1936)
Charles W. Tobey (1938)

NEW JERSEY

Albert W. Hawkes (1942)
H. Alexander Smith (1944)

NEW MEXICO

Carl A. Hatch (1934)
Dennis Chavez (1935)

NEW YORK

Robert F. Wagner (1927)
Irving M. Ives (1947)

NORTH CAROLINA

Clyde R. Hoey (1944)
William B. Umstead (1947)

NORTH DAKOTA

William Langer (1940)
Milton R. Young (1945)

OHIO

Robert A. Taft (1938)
John W. Bricker (1947)

OKLAHOMA

Elmer Thomas (1926)
E. H. Moore (1942)

OREGON

Guy Cordon (1944)
Wayne L. Morse (1944)

PENNSYLVANIA

Francis J. Myers (1944)
Edward Martin (1947)

RHODE ISLAND

Theodore F. Green (1936)
J. Howard McGrath (1947)

SOUTH CAROLINA

Burnet R. Maybank (1941)
Olin D. Johnston (1944)

SOUTH DAKOTA

Chan Gurney (1938)
Harlan J. Bushfield (1942)

TENNESSEE

Kenneth McKellar (1916)
Tom Stewart (1938)

TEXAS

Tom Connally (1928)
W. Lee O'Daniel (1941)

UTAH

Elbert D. Thomas (1932)
Arthur V. Watkins (1947)

VERMONT

George D. Aiken (1940)
Ralph E. Flanders (1947)

VIRGINIA

Harry F. Byrd (1933)
A. Willis Robertson (1946)

WASHINGTON

Warren G. Magnuson (1944)
Harry P. Cain (1947)

WEST VIRGINIA

Harley M. Kilgore (1940)
Chapman Revercomb (1942)

WISCONSIN

Alexander Wiley (1938)
Joseph R. McCarthy (1947)

WYOMING

Joseph C. O'Mahoney (1933)
Edward V. Robertson (1942)

MEMBERS OF THE HOUSE OF REPRESENTATIVES

COMPILED FROM THE CONGRESSIONAL DIRECTORY, YEAR 1948

Dates show beginning of service in the House. Names of Republicans are in Roman type; those of Democrats in *Italics;* American Labor in ROMAN CAPS; Progressive in SMALL CAPS.

ALABAMA

1. *Frank W. Boykin* (1935)
2. *George M. Grant* (1938)
3. *George W. Andrews* (1944)
4. *Sam Hobbs* (1935)
5. *Albert Rains* (1944)
6. *Pete Jarman* (1936)
7. *Carter Manasco* (1941)
8. *Robert E. Jones, Jr.* (1947)
9. *Laurie C. Battle* (1947)

ARIZONA

At Large—*John R. Murdock* (1936)
Richard F. Harless (1943)

ARKANSAS

1. *E. C. Gathings* (1938)
2. *Wilbur D. Mills* (1938)
3. *James W. Trimble* (1944)
4. *Fadjo Cravens* (1939)
5. *Brooks Hays* (1943)
6. *W. F. Norrell* (1938)
7. *Oren Harris* (1940)

CALIFORNIA

1. *Clarence F. Lea* (1917)
2. *Clair Engle* (1944)
3. Leroy Johnson (1943)
4. *Franck R. Havenner* (1944)
5. Richard J. Welch (1925)

6. *George P. Miller* (1944)
7. John J. Allen, Jr. (1947)
8. Jack Z. Anderson (1938)
9. Bertrand W. Gearhart (1935)
10. *Alfred J. Elliott* (1937)
11. Ernest K. Bramblett (1947)
12. Richard M. Nixon (1947)
13. Norris Poulson (1947)
14. *Helen Gahagan Douglas* (1944)
15. Gordon L. McDonough (1944)
16. Donald L. Jackson (1947)
17. *Cecil R. King* (1943)
18. Willis W. Bradley (1947)
19. *Chet Holifield* (1943)
20. Carl Hinshaw (1943)
21. *Harry R. Sheppard* (1936)
22. John Phillips (1943)
23. Charles K. Fletcher (1947)

COLORADO

1. *John A. Carroll* (1947)
2. William S. Hill (1940)
3. J. Edgar Chenoweth (1940)
4. Robert F. Rockwell (1941)

CONNECTICUT

At Large—Antoni N. Sadlak (1947)

1. William J. Miller (1947)
2. Horace Seely-Brown, Jr. (1947)
3. Ellsworth B. Foote (1947)
4. John Davis Lodge (1947)
5. James T. Patterson (1947)

DELAWARE

At Large—J. Caleb Boggs (1947)

FLORIDA

1. *J. Hardin Peterson* (1933)
2. *Emory H. Price* (1943)
3. *Robert L. F. Sikes* (1940)
4. *George A. Smathers* (1947)
5. *Joe Hendricks* (1936)
6. *Dwight L. Rogers* (1944)

GEORGIA

1. *Prince H. Preston, Jr.* (1947)
2. *E. E. Cox* (1925)
3. *Stephen Pace* (1936)
4. *A. Sidney Camp* (1939)
5. *James C. Davis* (1947)
6. *Carl Vinson* (1914)
7. *Henderson Lanham* (1947)
8. *W. M. Wheeler* (1947)
9. *John S. Wood* (1944)
10. *Paul Brown* (1933)

IDAHO

1. Abe McGregor Goff (1947)
2. John Sanborn (1947)

ILLINOIS

At Large—William G. Stratton (1947)

1. *William L. Dawson* (1943)
2. Richard B. Vail (1947)
3. Fred E. Busbey (1947)
4. *Martin Gorski* (1943)
5. *Adolph J. Sabath* (1907)
6. *Thomas J. O'Brien* (1943)
7. Thomas L. Owens (1947)
8. *Thomas S. Gordon* (1943)
9. Robert J. Twyman (1947)
10. Ralph E. Church (1943)
11. Chauncey W. Reed (1935)
12. Noah M. Mason (1936)
13. Leo E. Allen (1933)
14. Anton J. Johnson (1938)
15. Robert B. Chiperfield (1938)
16. Everett M. Dirksen (1933)
17. Leslie C. Arends (1935)
18. Edward H. Jenison (1947)
19. Rolla C. McMillen (1944)
20. Sid Simpson (1943)
21. [Vacant]
22. *Melvin Price* (1944)
23. Charles W. Vursell (1943)
24. Roy Clippinger (1945)
25. C. W. (Runt) Bishop (1940)

INDIANA

1. *Ray J. Madden* (1943)
2. Charles A. Halleck (1935)
3. Robert A. Grant (1938)
4. George W. Gillie (1938)
5. Forest A. Harness (1938)
6. Noble J. Johnson (1938)
7. Gerald W. Landis (1938)
8. Edward A. Mitchell (1947)
9. Earl Wilson (1940)
10. Ralph Harvey (1947)
11. *Louis Ludlow* (1929)

IOWA

1. Thomas E. Martin (1938)
2. H. O. Talle (1938)
3. John W. Gwynne (1935)
4. Karl M. Le Compte (1938)
5. Paul Cunningham (1940)
6. James I. Dolliver (1944)
7. Ben F. Jensen (1938)
8. Charles B. Hoeven (1943)

KANSAS

1. Albert M. Cole (1944)
2. Errett P. Scrivner (1943)
3. Herbert A. Meyer (1947)
4. Edward H. Rees (1936)
5. Clifford R. Hope (1926)
6. Wint Smith (1947)

KENTUCKY

1. *Noble J. Gregory* (1936)
2. [Vacant]
3. Thruston Ballard Morton (1947)
4. *Frank L. Chelf* (1944)
5. *Brent Spence* (1931)
6. *Virgil Chapman* (1931)
7. W. Howes Mead (1947)
8. *Joe B. Bates* (1938)
9. John M. Robsion (1935)

LOUISIANA

1. *F. Edward Hébert* (1940)
2. *Hale Boggs* (1947)
3. *James Domengeaux* (1940)
4. *Overton Brooks* (1936)
5. *Otto E. Passman* (1947)
6. *James H. Morrison* (1943)
7. *Henry D. Larcade, Jr.* (1943)
8. *A. Leonard Allen* (1936)

MAINE

1. Robert Hale (1943)
2. Margaret Chase Smith (1940)
3. Frank Fellows (1940)

MARYLAND

1. Edward T. Miller (1947)
2. *Hugh A. Meade* (1947)
3. *Edward A. Garmatz* (1947)
4. *George H. Fallon* (1944)
5. *Lansdale G. Sasscer* (1939)
6. J. Glenn Beall (1943)

MASSACHUSETTS

1. John W. Heselton (1944)
2. Charles R. Clason (1936)
3. *Philip J. Philbin* (1943)
4. *Harold D. Donohue* (1947)
5. Edith N. Rogers (1925)
6. George J. Bates (1936)
7. *Thomas J. Lane* (1943)
8. Angier L. Goodwin (1943)
9. Donald W. Nicholson (1947)
10. Christian A. Herter (1943)
11. John F. Kennedy (1947)
12. *J. W. McCormack* (1928)
13. R. B. Wigglesworth (1928)
14. J. W. Martin, Jr. (1925)

MICHIGAN

1. *George G. Sadowski* (1943)
2. Earl C. Michener (1935)
3. Paul W. Shafer (1936)
4. Clare E. Hoffman (1935)
5. Bartel J. Jonkman (1940)
6. William W. Blackney (1938)
7. Jesse P. Wolcott (1931)
8. Fred L. Crawford (1935)
9. Albert J. Engel (1935)
10. Roy O. Woodruff (1921)
11. Charles E. Potter (1947)
12. John B. Bennett (1947)
13. Howard A. Coffin (1947)
14. Harold F. Youngblood (1947)
15. *John D. Dingell* (1933)
16. *John Lesinski* (1933)
17. George A. Dondero (1933)

MINNESOTA

1. August H. Andresen (1935)
2. Joseph P. O'Hara (1940)
3. George MacKinnon (1947)
4. Edward J. Devitt (1947)
5. Walter H. Judd (1943)
6. Harold Knutson (1917)
7. H. Carl Andersen (1938)
8. *John A. Blatnik* (1947)
9. Harold C. Hagen (1943)

MISSISSIPPI

1. *John E. Rankin* (1921)
2. *Jamie L. Whitten* (1941)
3. *W. M. Whittington* (1925)
4. *Thomas G. Abernethy* (1943)
5. *Arthur Winstead* (1943)
6. *William M. Colmer* (1933)
7. *John Bell Williams* (1947)

MISSOURI

1. Wat Arnold (1943)
2. Max Schwabe (1943)
3. William C. Cole (1943)
4. *C. Jasper Bell* (1935)
5. Albert L. Reeves, Jr. (1947)
6. Marion T. Bennett (1944)
7. Dewey Short (1935)
8. Parke M. Banta (1947)
9. *Clarence Cannon* (1923)
10. *Orville Zimmerman* (1935)
11. Claude I. Bakewell (1947)

12. Walter C. Ploeser (1940)
13. *Frank M. Karsten* (1947)

MONTANA

1. *Mike Mansfield* (1943)
2. Wesley A. D'Ewart (1945)

NEBRASKA

1. Carl T. Curtis (1943)
2. Howard H. Buffett (1943)
3. Karl Stefan (1935)
4. A. L. Miller (1943)

NEVADA

At Large—Charles H. Russell (1947)

NEW HAMPSHIRE

1. Chester E. Merrow (1943)
2. Norris Cotton (1947)

NEW JERSEY

1. C. A. Wolverton (1926)
2. T. Millet Hand (1944)
3. James C. Auchincloss (1943)
4. Frank A. Mathews, Jr. (1946)
5. Charles A. Eaton (1925)
6. Clifford P. Case (1944)
7. J. Parnell Thomas (1936)
8. Gordon Canfield (1940)
9. Harry L. Towe (1943)
10. F. A. Hartley, Jr. (1929)
11. Frank L. Sundstrom (1943)
12. Robert W. Kean (1938)
13. *Mary T. Norton* (1925)
14. *Edward J. Hart* (1935)

NEW MEXICO

At Large—*Antonio M. Fernandez* (1943)
Georgia L. Lusk (1947)

NEW YORK

1. W. Kingsland Macy (1947)
2. Leonard W. Hall (1938)
3. Henry J. Latham (1944)
4. Gregory McMahon (1947)
5. Robert Tripp Ross (1947)
6. Robert Nodar, Jr. (1947)
7. *John J. Delaney* (1931)
8. *Joseph L. Pfeifer* (1935)
9. *Eugene J. Keogh* (1936)
10. *Andrew L. Somers* (1925)
11. *James J. Heffernan* (1940)
12. *John J. Rooney* (1944)
13. *Donald L. O'Toole* (1936)
14. *Abraham J. Multer* (1947)
15. *Emanuel Celler* (1923)
16. Ellsworth B. Buck (1944)
17. Frederic R. Coudert, Jr. (1947)
18. VITO MARCANTONIO (1938)
19. *Arthur G. Klein* (1947)
20. *Sol Bloom* (1923)
21. Jacob K. Javits (1947)
22. *Adam C. Powell, Jr.* (1944)
23. *Walter A. Lynch* (1940)
24. *Benjamin J. Rabin* (1944)
25. *Charles A. Buckley* (1935)
26. David M. Potts (1947)
27. Ralph W. Gwinn (1944)
28. Ralph A. Gamble (1937)
29. Katharine St. George (1947)
30. Jay LeFevre (1943)
31. Bernard W. (Pat) Kearney (1943)
32. *William T. Byrne* (1936)
33. Dean P. Taylor (1943)
34. Clarence E. Kilburn (1940)
35. Hadwen C. Fuller (1944)
36. R. Walter Riehlman (1947)
37. Edwin A. Hall (1939)
38. John Taber (1923)
39. W. Sterling Cole (1935)
40. Kenneth B. Keating (1947)
41. James W. Wadsworth (1933)
42. Walter G. Andrews (1931)
43. Edward J. Elsaesser (1944)
44. John C. Butler (1941)
45. Daniel A. Reed (1919)

NORTH CAROLINA

1. *Herbert C. Bonner* (1940)
2. *John H. Kerr* (1923)
3. *Graham A. Barden* (1935)
4. *Harold D. Cooley* (1935)
5. *John H. Folger* (1941)
6. *Carl T. Durham* (1938)
7. *J. Bayard Clark* (1929)
8. *Charles B. Deane* (1947)
9. *R. L. Doughton* (1911)
10. *Hamilton C. Jones* (1947)
11. *Alfred L. Bulwinkle* (1931)
12. *Monroe M. Redden* (1947)

NORTH DAKOTA

At Large—William Lemke (1943)
Charles R. Robertson (1944)

OHIO

At Large—George H. Bender (1938)

1. Charles H. Elston (1938)
2. William E. Hess (1938)
3. Raymond H. Burke (1947)
4. William M. McCulloch (1947)
5. Cliff Clevenger (1938)
6. Edward O. McCowen (1943)
7. Clarence J. Brown (1938)
8. Frederick C. Smith (1938)
9. Homer A. Ramey (1943)
10. T. A. Jenkins (1925)
11. Walter E. Brehm (1943)
12. John M. Vorys (1938)
13. Alvin F. Weichel (1943)
14. *Walter B. Huber* (1944)
15. P. W. Griffiths (1943)
16. Henderson H. Carson (1947)
17. J. Harry McGregor (1940)
18. Earl R. Lewis (1943)
19. *Michael J. Kirwan* (1936)
20. *Michael A. Feighan* (1943)
21. *Robert Crosser* (1923)
22. Frances P. Bolton (1940)

OKLAHOMA

1. George B. Schwabe (1944)
2. *William G. Stigler* (1944)
3. *Carl Albert* (1947)
4. *Glen D. Johnson* (1947)
5. *A. S. Mike Monroney* (1938)
6. *Toby Morris* (1947)
7. *Preston E. Peden* (1947)
8. Ross Rizley (1940)

OREGON

1. Walter Norblad (1946)
2. Lowell Stockman (1943)
3. Homer D. Angell (1938)
4. Harris Ellsworth (1943)

PENNSYLVANIA

1. James Gallagher (1947)
2. Robert N. McGarvey (1947)
3. Hardie Scott (1947)
4. Franklin J. Maloney (1947)
5. George W. Sarbacher (1947)
6. Hugh D. Scott, Jr. (1947)
7. E. Wallace Chadwick (1947)
8. Franklin H. Lichtenwalter (1947)
9. Paul B. Dague (1947)
10. James P. Scoblick (1946)
11. Mitchell Jenkins (1947)
12. Ivor D. Fenton (1938)
13. Frederick A. Muhlenberg (1947)
14. Wilson D. Gillette (1941)
15. Robert F. Rich (1944)
16. Samuel K. McConnell, Jr. (1944)
17. Richard M. Simpson (1937)
18. John C. Kunkel (1938)
19. Leon H. Gavin (1943)
20. *Francis E. Walter* (1933)
21. Chester H. Gross (1943)
22. James E. Van Zandt (1947)
23. William J. Crow (1947)
24. *Thomas E. Morgan* (1944)
25. Louis E. Graham (1938)
26. Harve Tibbott (1938)
27. *Augustine B. Kelley* (1941)
28. Carroll D. Kearns (1947)
29. John McDowell (1947)
30. Robert J. Corbett (1944)
31. James G. Fulton (1944)
32. *Herman P. Eberharter* (1936)
33. *Frank Buchanan* (1946)

RHODE ISLAND

1. *Aime J. Forand* (1940)
2. *John E. Fogarty* (1940)

SOUTH CAROLINA

1. *L. Mendel Rivers* (1940)
2. *John J. Riley* (1944)
3. *W. J. Bryan Dorn* (1947)
4. *Joseph R. Bryson* (1938)
5. *James P. Richards* (1933)
6. *John L. McMillan* (1938)

SOUTH DAKOTA

1. Karl E. Mundt (1938)
2. Francis Case (1936)

TENNESSEE

1. Dayton E. Phillips (1947)
2. John Jennings, Jr. (1940)
3. *Estes Kefauver* (1939)
4. *Albert Gore* (1938)
5. *Joe L. Evins* (1947)
6. *J. Percy Priest* (1940)
7. *Wirt Courtney* (1939)
8. *Tom Murray* (1943)
9. *Jere Cooper* (1929)
10. *Clifford Davis* (1940)

TEXAS

1. *Wright Patman* (1929)
2. *J. M. Combs* (1944)
3. *Lindley Beckworth* (1938)
4. *Sam Rayburn* (1913)
5. *J. Frank Wilson* (1947)
6. *Olin E. Teague* (1947)
7. *Tom Pickett* (1944)

8. *Albert Thomas* (1936)
9. *Clark W. Thompson* (1947)
10. *Lyndon B. Johnson* (1937)
11. *William R. Poage* (1936)
12. *Wingate H. Lucas* (1947)
13. *Ed Gossett* (1938)
14. *John E. Lyle* (1944)
15. *Milton H. West* (1933)
16. *Ken Regan* (1947)
17. *Omar Burleson* (1947)
18. *Eugene Worley* (1940)
19. *George H. Mahon* (1935)
20. *Paul J. Kilday* (1938)
21. *O. C. Fisher* (1943)

UTAH

1. *Walter K. Granger* (1943)
2. William A. Dawson (1947)

VERMONT

At Large—Charles A. Plumley (1935)

VIRGINIA

1. *Schuyler O. Bland* (1918)
2. *Porter Hardy, Jr.* (1947)
3. *J. Vaughan Gary* (1945)
4. *Patrick H. Drewry* (1920)
5. *Thomas B. Stanley* (1946)
6. *J. Lindsay Almond, Jr.* (1947)
7. *Burr P. Harrison* (1947)
8. *Howard W. Smith* (1931)
9. *John W. Flannagan, Jr.* (1931)

WASHINGTON

1. Homer R. Jones (1947)
2. *Henry M. Jackson* (1940)
3. Russell V. Mack (1947)
4. Hal Holmes (1943)
5. Walt F. Horan (1943)
6. Thor C. Tollefson (1947)

WEST VIRGINIA

1. Francis J. Love (1947)
2. Melvin C. Snyder (1947)
3. Edward G. Rohrbough (1947)
4. Hubert S. Ellis (1943)
5. *John Kee* (1933)
6. *E. H. Hedrick* (1944)

WISCONSIN

1. Lawrence H. Smith (1941)
2. Glen R. Davis (1947)
3. William H. Stevenson (1940)
4. John C. Brophy (1947)
5. Charles J. Kersten (1947)
6. Frank B. Keefe (1938)
7. Reid F. Murray (1938)
8. John W. Byrnes (1944)
9. Merlin Hull (1935)
10. Alvin E. O'Konski (1943)

WYOMING

At Large—Frank A. Barrett (1943)

ALASKA

E. L. Bartlett (1944)

HAWAII

Joseph R. Farrington (1943)

PUERTO RICO

A. Fernós-Isern (1946)

FEDERAL JUDICIAL ORGANIZATION

By William M. Schuyler
Editor, *The American Year Book*

SUPREME COURT OF THE UNITED STATES

Frederick M. Vinson (Kentucky), Chief Justice of the United States, appointed 1946.

Hugo L. Black (Alabama), appointed 1937.

Stanley F. Reed (Kentucky), appointed 1938.

Felix Frankfurter (Massachusetts), appointed 1939.

William Orville Douglas (Minnesota), appointed 1939.

Frank Murphy (Michigan), appointed 1940.

Robert H. Jackson (New York), appointed 1941.

Wiley Blount Rutledge, Jr. (Kentucky), appointed 1943.

Harold H. Burton (Ohio), appointed 1945.

Officers of the Supreme Court: Clerk—Charles Elmore Cropley.

Deputy Clerks—Reginald C. Dilli, Hugh W. Barr, Harold B. Willey.

Marshal—Thomas E. Waggaman.

Reporter—Walter Wyatt.

Librarian—Helen Newman.

UNITED STATES CIRCUIT COURT OF APPEALS

District of Columbia Judicial Circuit.—Mr. Chief Justice Vinson.

First Circuit.—Mr. Justice Frankfurter; Calvert Magruder (Massachusetts), John C. Mahoney (Rhode Island), Peter Woodbury (New Hampshire).

Second Circuit.—Mr. Justice Jackson; Learned Hand (New York), Thomas W. Swan (Connecticut), Augustus N. Hand (New York), Harrie Brigham Chase (Vermont), Charles E. Clark (Connecticut), Jerome N. Frank (New York).

Third Circuit.—Mr. Justice Burton; Albert Branson Maris (Pennsylvania), John Biggs, Jr. (Delaware), John J. O'Connell (Pennsylvania), Herbert F. Goodrich (Pennsylvania), Gerald McLaughlin (New Jersey), Harry E. Kalodner (Pennsylvania).

Fourth Circuit.—Mr. Chief Justice Vinson; John J. Parker (North Carolina), Morris A. Soper (Maryland), Armistead M. Dobie (Virginia).

Fifth Circuit.—Mr. Justice Black; Samuel H. Sibley (Georgia), Joseph C. Hutcheson, Jr. (Texas), Edwin R. Holmes (Louisiana), Leon McCord (Alabama), Curtis L. Waller (Florida), Elmo Pearce Lee (Louisiana).

Sixth Circuit.—Mr. Justice Reed; Xenophon Hicks (Tennessee), Charles C. Simons (Michigan), Florence E. Allen (Ohio), John D. Martin (Tennessee), Thomas F. McAllister (Michigan), Shackelford Miller, Jr. (Kentucky).

Seventh Circuit.—Mr. Justice Murphy; Evan A. Evans (Wisconsin), William M. Sparks (Indiana), J. Earl Major (Illinois), Sherman Minton (Indiana), Otto Kerner (Illinois).

Eighth Circuit.—Mr. Justice Rutledge; John B. Sanborn (Minnesota), Archibald K. Gardner (South Dakota), Joseph W. Woodrough (Nebraska), Seth Thomas (Iowa), Harvey M. Johnsen (Nebraska), Walter G. Riddick (Arkansas), John C. Collet (Missouri).

Ninth Circuit.—Mr. Justice Douglas; Francis A. Garrecht (Washington), William Denman (California), Clifton Mathews (California), Albert Lee Stephens (California), William Healey (Idaho), Homer T. Bone (Washington), William E. Orr (Nevada).

Tenth Circuit.—Mr. Justice Rutledge; Orie L. Phillips (Colorado), Sam G. Bratton (New Mexico), Walter A. Huxman (Kansas), Alfred P. Murrah (Oklahoma).

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

Finis James Garrett (Tennessee), Presiding Judge, appointed 1929.

Charles Sherrod Hatfield (Ohio), appointed 1923.

Joseph R. Jackson (Montana), appointed 1937.

Ambrose O'Connell (Iowa), appointed 1944.

[Vacancy.]

UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA

D. Lawrence Groner, Chief Justice.
Harold M. Stephens.
Henry White Edgerton.
Bennett Champ Clark.
Wilbur K. Miller.
Elijah B. Prettyman.

UNITED STATES EMERGENCY COURT OF APPEALS

Albert Branson Maris, Chief Judge.
Calvert Magruder.
Walter C. Lindley.
Bolitha J. Laws.
Thomas F. McAllister.

COURT OF CLAIMS OF THE UNITED STATES

Marvin Jones (Texas), Chief Justice, appointed 1947.

Benjamin H. Littleton (Tennessee), appointed 1929.

Samuel E. Whitaker (Tennessee), appointed 1939.

Joseph W. Madden (Illinois), appointed 1941.

Evan Howell (Illinois), appointed 1947.

DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

Bolitha J. Laws, Chief Justice.
Jennings Bailey.
James M. Proctor.
F. Dickinson Letts.
T. Alan Goldsborough.
James W. Morris.
David A. Pine.
Matthew F. McGuire.
Henry A. Schweinhaut.
Alexander Holtzoff.
Richmond B. Keech.
Edward M. Curran.

UNITED STATES CUSTOMS COURT

Webster J. Oliver, Presiding Judge.
William J. Tilson.
Genevieve R. Cline.
David H. Kincheloe.
William A. Ekwall.

William P. Cole.
Charles D. Lawrence.
Irvin C. Mollison.
Jed Johnson.

TAX COURT OF THE UNITED STATES

Bolon B. Turner, Presiding Judge.
C. Rogers Arundell.
Ernest H. Van Fossan.
J. Edgar Murdock.
Eugene Black.
J. Russell Leech.
William W. Arnold.
John A. Tyson.
Samuel B. Hill.
Richard L. Disney.
Marion J. Harron.
John W. Kern.
Clarence V. Opper.
Byron B. Harlan.
Clarence P. LeMire.
Luther A. Johnson.

UNITED STATES MARSHAL'S OFFICE

United States Marshal.—W. Bruce Matthews.

UNITED STATES ATTORNEY'S OFFICE

United States Attorney, District of Columbia.—George M. Fay.

Assistants.—John W. Fihelly, Charles B. Murray, Cecil R. Heflin, Grace B. Stiles, John B. Diamond, Arthur J. McLaughlin, William Hitz, Sidney S. Sachs, J. Warren Wilson, John C. Conliff, Jr., John P. Burke, Sylvan Schwartz, Joseph F. Lawless, Helena D. Reed, John J. O'Leary, Daniel B. Maher, Andrew J. Howard, John D. Lane, Oliver O. Dibble, William S. McKinley, Evan T. Davis, Edward Molenof, Richard M. Roberts, James C. McKay, C. Frank Reifsnyder.

CIVIL SERVICE IN THE UNITED STATES

By Harry B. Mitchell

President of the United States Civil Service Commission

FEDERAL CIVIL SERVICE LEGISLATION

The following laws affecting Federal employment were enacted by Congress during the year:

Public Law 101. Section 305 of this law prohibits strikes against the Government by Federal employees. Any such employee who strikes shall be discharged from Federal employment, shall forfeit his civil service status, if any, and shall not be eligible for reemployment for three years by another agency of the Government.

Public Law 313. This statute authorized the creation of 30 scientific and professional positions in the Department of the Army and the Department of the Air Force, and 15 in the Department of the Navy at compensations between $10,000 and $15,000 a year. Heretofore the general salary ceiling fixed by Congress is $10,000.

Public Law 325. Under Section 14 of the Veterans' Preference Act of 1944, appeal procedure to the Civil Service Commission provided only for recommendation by the Commission to the department or agency as to action to be taken in the case of any veteran. Public Law 325 provides that the agencies shall carry into effect the recommendation of the Commission.

RETIREMENT LEGISLATION

The Act of July 11, 1947 provides for annuities for the investigatory personnel for the Federal Bureau of Investigation after completion of 20 years of service upon reaching the age of 50. This is a much more liberal provision than is granted to any other group of Federal employees. By Act of July 21, 1947 the Congress included under the Federal retirement system Official Reporters of Debates of the Senate and their employees.

On July 24, 1947 there was approved

a statute which brought a small group of employees of the Panama Railroad Company within the Canal Zone Retirement Act. On Aug. 4, 1947 there was enacted a law amending the Canal Zone Retirement Act to provide for the re-computation of annuities to those who had retired prior to July 29, 1942 in order to give them the benefit of the higher computation possible under the 1942 Act.

On July 30, 1947 the service restriction on the payment of refund of retirement deductions was raised to ten years of civilian service. Theretofore only those persons who had service of less than five years, including military service, could secure refund of retirement deductions upon separation from the service.

NEW CIVIL SERVICE RULES

On Feb. 24, 1947 the President issued an Executive Order promulgating new civil service rules effective May 1, 1947. Existing instructions, regulations and executive orders were consolidated in the new rules and regulations which combined the best and most successful policies developed during the war years. These rules and regulations displaced the temporary rules and regulations issued in March 1946. Under these rules the Commission, to the extent of its resources, has been holding competitive examinations to reestablish the merit system on a permanent basis. In June 1946 approximately 60 per cent of the Federal employees were serving under temporary or war service appointments of limited duration. By June 1947, although there had been a heavy reduction in force during the year, the percentages were reversed.

It had been the practice to let career employees who were dropped because of reduction in force shift for themselves in securing new appointments with the Government. The Federal Commission inaugurated a policy whereby such employees are given first opportunity to fill positions, and the departments and agencies have been required to displace war service and temporary employees in order to assure that career employees are considered for appointment. Care was exercised to see that employees thus certified were fully qualified. Several thousand former employees have received employment through this plan and they are continuing their careers as government workers. The plan has been applied only to employees who have a regular civil service status.

UNITED STATES SUPREME COURT DECISIONS

Two important decisions have in effect declared the provisions of Section 9(a) and Section 12(a) of the Hatch Act to be constitutional. One of them in a case brought by the United Public Workers of America (CIO) upheld the Civil Service Commission's power to adjudicate political activity cases of the incumbents of Federal positions in the government service. The decision means that Federal employees remain subject to the same political activity restrictions as have been applied for many years under the civil service rules. The second decision related to employees of a state government in an activity financed in whole or in part by Federal funds. The constitutionality of this section of the Hatch Act was upheld by the Supreme Court.

ADMINISTRATIVE PROCEDURE ACT

This Act governs the employment of hearing examiners throughout the Federal service and requires their appointment to be made under the Civil Service Act. They may be removed only for good cause established and determined by the Commission after opportunity for hearing and upon the record thereof, and they are to receive compensation prescribed by the Commission independently of the agencies' recommendations or ratings and in accordance with the Classification Act of 1923, as amended. There are 14 different agencies of the Federal Government which employ hearing examiners within the purview of this statute.

LOYALTY INVESTIGATIONS

By Executive order a program was established for a loyalty investigation of employees in the executive branch and all prospective appointees. The Federal Bureau of Investigation with the Civil Service Commission and the employing agencies cooperate in the program for which Congress provided funds at the end of July. The purpose of the order is to prevent employment of persons not loyal to the United States. Every precaution has been taken to protect the rights of incumbent employees. A Loyalty Review Board has been established, consisting of outstanding citizens not otherwise connected with the government, and this Board has full authority to review any case of a person separated on any question of loyalty by an employing agency.

LEAVE ACCUMULATION ACT

By Act of Congress approved July 25, 1947 the maximum limitation on unused annual leave has been restored to the original 60 days. During the war when many employees took little if any leave Congress authorized extension up to 90 days. The new law provides that those employees who had accumulated by July 25 more than 60 days up to the maximum of 90 days will not lose the additional accumulation. Hereafter, however, not more than 60 days annual leave may be accumulated.

SUBVERSIVE ACTIVITY

An employee of the Federal Works Agency was conditionally transferred to the War Manpower Commission, subject to subsequent investigation, and brought within the scope of the War Service Regulations which provided that an applicant may be denied appointment if a reasonable doubt exists as to his loyalty to the Government of the United States. The Civil Service Commission conducted a thorough investigation as to the employee's character and fitness and determined that there was reasonable doubt as to his loyalty based on his membership and activities in an alleged Communist-dominated organization, and the agency was requested to terminate his services. On review of the record by the court, it declared that this was not a case of removal after employment, but removal on the basis of ineligibility, and thus did not constitute a violation of the Hatch Act or an infringement of the employee's constitutional liberties as guaranteed by the first and fifth amendments. (*Friedman v. Schwellenbach, et al.*, 65 F. Supp. 254.) The District Court upheld the determination of the Civil Service Commission. (65 F. Supp. 254.)

GOVERNMENT REORGANIZATION

As reported in 1946, the Reorganization Act of 1945 gave the President authority for two years to issue executive orders to bring about reorganization of the government. Three orders were presented to Congress in 1946, one of which was disapproved. In 1947 three additional orders were issued, two of which became law.

Reorganization Plan No. 1 of 1947 transferred to the Department of Justice the Office of the Alien Property Custodian, except the functions relating to the Philippine Alien Property Administration which continued as a separate agency. Functions of the Office of Contract Settlement were transferred to the Treasury Department as were also those relating to certain internal revenue activities under the National Prohibition Act. Certain research functions of eight bureaus of the Department of Agriculture were concentrated in the Department of Agriculture, and credit union functions of the Farm Credit Administration were transferred to the Federal Deposit Insurance Corporation. Further consolidation relating to the disposal of surplus property was brought about in the War Assets Administration.

Reorganization Plan No. 2 was disapproved by both Houses of Congress and therefore did not become law. It proposed to transfer the United States Employment Service to the Department of Labor, and affected also the Wage and Hour Division and the administration of labor laws on Federal public works contracts.

Reorganization Plan No. 3, which became law, establishes the Housing and Home Finance Agency and groups together as constituent operating agencies—(1) A Home Loan Bank Board to administer the Federal Savings and Loan Insurance Corporation, the Home Owners' Loan Corporation, and the functions of the Federal Home Loan Bank Board and its members; (2) a Federal Housing Administration with the same functions as now provided by law for that agency; and (3) a Public Housing Administration to take over the functions of the United States Housing Authority and certain remaining emergency housing activities pending the completion of their liquidation. Each constituent agency will possess its individual identity and be responsible for the operation of its program.

On July 7, 1947 the President approved a bill establishing the Commission on Organization of the Executive Branch of the Government. This Commission is to make a thorough study of the organization of the executive branch with a view to promoting economy, efficiency, and improved service in the transaction of public business. Its membership, numbering 12, comes from Congress, private life, and the executive branch. Former President Herbert Hoover is Chairman, and the Commission has until ten days after the convening of the Eighty-first Congress in January 1949 to make its report of findings and recommendations to Congress.

EMPLOYMENT IN THE EXECUTIVE CIVIL SERVICE

The downward trend in Federal civilian employment continued during the year. On Jan. 30, 1946 there were 2,299,007 civilian employees in continental United States and 423,000 outside. By June 30, 1947 these numbers were down to 1,849,847, and 281,322, respectively, a total reduction of 590,838. Further reductions brought the number during September 1947 down to 1,766,650 for continental United States and 257,146 outside, a total of 2,023,796. The peak for civilian employment in continental United States was reached in June 1943, totaling 3,156,953; and although this number was down to 2,915,476 by June 30, 1945, employment outside continental United States climbed to approximately 850,500, a grand total on that date of 3,765,976, the highest number of civilian employees at any one time. The accompanying table shows the number employed in continental United States at the end of each fiscal year in two-year periods.

	June 30, 1939	June 30, 1941	June 30, 1943	June 30, 1945	June 30, 1947
Competitive classified positions	622,832	990,218	*	*	1,037,353**
Unclassified and exempt positions	297,478	367,932	*	*	812,494**
	920,310	1,358,150	3,156,953	2,915,476	1,849,847

* Statistics showing the division between competitive classified positions and unclassified positions are no longer available under war service appointment procedure.

** Estimated.

There were 400,931 women employed full time in continental United States at the end of September 1947. The percentage of veterans employed increased during the year ending with September from 38 to 44 for both men and women; among the men alone it was 54 as contrasted with 51 the year before. After V-J Day the percentage of veterans employed in September 1945 was only 18. The total number of persons entitled to preference who were employed in September 1947 was 770,027, of whom 37,587 were women.

CIVIL SERVICE IN THE STATES

On the ground that pensions paid to disabled employees are in the nature of workmen's compensation, firemen and policemen in New York City, who are retired as a result of service-connected disabilities, are not required to pay Federal income taxes on their pensions. This is the substance of two separate rulings issued by the Federal Bureau of Internal Revenue. These rulings are generally applicable under similar circumstances.

A survey shows a substantial increase in the number of municipal employees for the first time in several years, the increase amounting to 123,000 for the year ending October 1946. The survey also shows a steady trend in the direction of shorter hours for city employees, 57 per cent of the 900 cities studied having work-weeks of less than 42 hours. The figures from the United States Census Bureau reveal that the country's five largest cities—New York, Philadelphia, Chicago, Detroit, and Los Angeles—employ together one-fourth of all municipal employees in the United States. At the end of 1946 there were more than 980,000 municipal employees in the United States.

CALIFORNIA

Military leave is granted state employees who are required to take part in training courses as members of the National Guard, or of military or naval reserve units. State employees with a year or more of service are allowed up to 30 days leave with pay each year to attend military training courses.

Where a statute providing for definite periods of sick leave with pay authorizes the personnel board to grant additional sick leave, the board may include within the scope of "sick leave" such matters as attendance on a member of the employee's immediate family seriously ill, absence necessitated by death in employee's immediate family, exposure to contagious disease, or other reasonable situation impliedly authorized by the statute. A rule of the commission extending such reasonable privileges under a general legislative policy setting forth basic standards is not a delegation of legislative authority, but is within the purview and spirit of the statute. (*Nelson v. Dean,* 168 P. (2d) 16 Cal.)

CONNECTICUT

Beginning Jan. 1, 1948, Connecticut state employees are given the opportunity to participate in a group life insurance plan financed in part by state funds. The plan, embodied in a bill passed at the last session of the legislature, allows each full-time employee to purchase a $1,000 policy if his salary is less than $2,000 per year. Employees whose annual salaries are more than $2,000 can purchase life insurance up to a maximum of $2,000.

FLORIDA

The state legislature recently enacted a state-wide veterans' preference law applying to all cities within the state having civil service programs. The law provides that five points shall be added to the final examination grades of honorably discharged veterans, provided that they first achieve a passing grade in the examination, and that ten points shall be added to the grades of disabled veterans, wives of disabled veterans, and widows of deceased veterans. It further provides that, in the case of disabled veterans whose disability is rated by the Veterans' Administration as 30 per cent or more, such veterans are to be placed at the head of the eligible list, except for positions in professional and scientific services for which the entrance salary is over $3,000 a year. The law also provides that veterans shall be given preference in reinstatement, reemployment, and in retention in the event of reduction in force.

The constitutionality of the Duval County, Florida, civil service act adopted by the Florida legislature in 1943 was attacked on four points; (1) that the statute by empowering the civil service board to make rules for carrying out the act was an invalid delegation to the board of legislative power; (2) that it denied equal protection to both those in the classified and unclassified service in that it excluded elective and appointive officials and others requiring technical and scientific training from having a classified status; (3) that the civil service act deprived citizens of property without due process of law; and (4) that it violated the state constitutional provision against creation of any office with a term longer than four years. The court maintained that the grounds on which the act was attacked were untenable.

ILLINOIS

In a case before the Supreme Court of Illinois an attempt was made by the legislature to reinstate a policeman who was a war veteran and who had been dismissed from the Chicago city service for falsifying his age when he took the examination for patrolman. Several years after appointment he was dismissed on charges that he had misrepresented his age at the time of examination. In 1945 a special act was passed providing that "no person appointed in the classified civil service who is entitled to military preference . . . shall be removed or discharged because he misstated his age. Any such person so discharged shall be immediately reinstated upon the taking effect of this amendatory act."

The court upheld the validity of preference in civil service appointments for veterans as valid class legislation. However, class legislation which grants a particular class of veterans immunity "from the consequences of falsely stating his age on an application for examination" is invalid discrimination. The court held the attempt of the general assembly which not only sought to grant the veteran immunity from the consequences of his fraudulent act, but to secure for him a reinstatement in his position which he fraudulently obtained in the first place, as repugnant not only to the constitutional prohibition against discriminatory class legislation, but as "likewise repugnant to basic morality." (*Jendrick v. Allman,* 71 N.E. (2d) 44.)

LOUISIANA

A comprehensive retirement plan, based on actuarial principles, for employees of the city of New Orleans has been adopted. Coverage of the new system extends to all city employees; elected officers and persons appointed for fixed terms may join at their option. The plan calls for a 5 per cent payroll deduction from each employee's salary, which is matched by funds contributed by the city. Employees may retire at age 60, and retirement is compulsory at age 70. The plan stipulates that the compulsory retirement age shall be lowered one year every three years until, at the end of 15 years, the compulsory retirement age is 65.

MICHIGAN

City employees of River Rouge have been placed under a retirement system which calls for a five per cent deduction from each employee's salary.

MINNESOTA

The legislature provided substantial pay increases for state employees. This was accomplished by eliminating the lowest pay range in the state pay plan, and adding four new ranges at the top. Pay rates will be adjusted to the next higher range, and employees will also receive a three-step cost-of-living pay increase. According to statistics of the Minnesota State Civil Service Department, 90 per cent of all job openings in the state service filled from eligible lists during a period of 22 months were first offered to veterans.

NEW JERSEY

City employees in eight New Jersey municipalities were placed under civil service as the result of referenda on the question of civil service extension at recent elections. Voters approved adoption of the state-administered civil service system in Hackensack, Hoboken, Mount Holley, Riverside, Vineland, Bayonne, North Bergen, and West New York. In Montclair, the proposal to adopt civil service was defeated. Municipalities within the state have the option of coming under the civil service program administered by the state civil service department. There are now 80 public jurisdictions in New Jersey where employees are under civil service. This includes, in addition to the state service, 64 municipalities, 14 counties, and the Newark Board of Education.

In the same elections, voters approved participation in the state-wide public employee retirement program in the following localities; Bergenfield, Fairview, Hackensack, Mount Holley, Phillipsburg, Ruthersford, Washington, and in Monmouth County. In 12 communities, where proposals to raise the pay of policemen, firemen, and other employee groups were voted on, the measures were approved.

State employees who take part in training courses as members of the National Guard, or of military or naval reserve units, are given leave with full pay up to two weeks. If the training period extends beyond two weeks, the employee receives the difference between his military pay and his state pay for a period of 30 days after the first two weeks.

NEW MEXICO

By legislative approval, public employee retirement plans became effective Aug. 1. Under the plan employees will contribute 3½ per cent of their monthly salaries, and the employer will contribute an equal amount.

NEW YORK

Veterans with "zero per cent" disability ratings are not entitled to preference as disabled veterans, as provided in the New York state constitution, and only those veterans who have a disability rating of at least 10 per cent are entitled to preference as disabled veterans. That is the substance of the court's decision in a test case (*Winteritz v. New York City Civil Service Commission*), on which the New York Court of Appeals ruled on July 2. The decision upheld a previous ruling by the lower court.

Strikes by public employees in New York are banned under a bill passed and signed by the Governor. The measure, which evoked heated protest from public employee organizations, applies not only to New York State employees, but also to employees of local governments within the state. Under the new anti-strike law, any public employee who goes on strike automatically forfeits his job. The law further provides that reinstated strikers are placed on probation for five years, during which they are denied the protection provided in the civil service law in the event of discharge, their employment being entirely at the pleasure of the appointing authority.

In New York, legislation based on recommendations by the State Salary Standardization Board will result in extensive reorganization of pay schedules. Under the new plan, 50 salary grades are set up, each containing a minimum, a maximum, and four within-grade step increases. Wartime emergency pay increases that have been granted to employees in the past are made a part of the permanent state salary structure.

NORTH DAKOTA AND OREGON

The state of North Dakota has adopted a retirement system for its state employees. The Oregon state legislature authorized pay increases for 60 top statutory and administrative officials in the state service, including the Governor, Secretary of State, State Treasurer, and Attorney General.

TEXAS

The Texas Supreme Court upheld the constitutionality of a Dallas ordinance forbidding city employees to join labor unions.

A new Texas law, passed during the last session of the legislature, requires that a referendum be held on the question of adopting civil service for firemen and policemen in all cities of 10,000 or more population. The law, which became effective Sept. 5, provides that a special election be scheduled within 90 days after the effective date. According to the 1940 Federal Census, 48 Texas cities have populations of 10,000 or more. Eight of these—Amarillo, Corpus Christi, Dallas, El Paso, Fort Worth, Houston, San Antonio, and Waco—already have civil service laws in effect.

The law provides for the appointment of a three-member fire and police civil service commission, and further provides for the appointment of a director of civil service by the Commission. One provision of the law prohibits firemen and policemen, covered by the act, from engaging in strikes, under penalty of automatic dismissal, fine, and imprisonment.

Texas adopted a retirement plan for its state employees.

VIRGINIA

Fire and police department employees in the city of Richmond are to be placed under a merit system, according to a directive issued by the Mayor. At the present time, the city has no formal civil service system in any of its departments. A citizen commission has been named to study the city's government structure and make recommendations concerning needed improvements in the charter. Four cities in Virginia recently took advantage of the state retirement act and placed their employees under the plan. The cities are Winchester, Lexington, Martinsville, and Harrisonburg.

WASHINGTON

Legislation was enacted which calls for pensions ranging from $100 to $150 per month after 35 years of service. Retirement is optional at age 60 and compulsory at age 65. Employees contribute 5 per cent of their salaries up to $3,600 a year, beginning Oct. 1, and the state matches the employees' contribution. This is limited to state employees, and contains an unusual feature in that it is open to appointed and elected state officials, except for members of the legislature.

WISCONSIN

In Wisconsin, the Acting Governor approved a bill continuing the emergency salary increases that have been granted to state employees. A civil service program, administered by a five-man committee, was adopted for employees of Brown County.

PERIODICAL PUBLICATIONS

Army and Navy Journal
1701 Connecticut Ave., N.W., Washington, D. C.
Congressional Digest
2131 LeRoy Place N.W., Washington, D. C.
Congressional Directory
U. S. Government Printing Office, Washington, D. C.
Congressional Record
U. S. Government Printing Office, Washington, D. C.
United States News
2201 M Street N.W., Washington, D. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

Academy of Political Science, Fayerweather Hall, Columbia University, New York City.

American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.

American Bar Assn., 1140 N. Dearborn St., Chicago, Ill.

American Historical Assn., Library of Congress Annex, Study Room 274, Washington, D. C.

American Political Science Assn., 105 Harris Hall, Northwestern University, Evanston, Ill.

Commercial Law League of America, 111 W. Monroe St., Chicago, Ill.

Honest Ballot Assn., Inc., 27 William St., New York City.

Institute of Public Administration, 684 Park Ave., New York City.

National Assn. of Legal Aid Organizations, 25 Exchange St., Rochester, N. Y.

National Civil Service League, 67 W. 44th St., New York City.

Town Hall Inc., The, 123 West 43rd St., New York City.

DIVISION IV

STATE GOVERNMENT

STATE ADMINISTRATION AND LEGISLATION

By Arnold A. Sio
Research Assistant, Council of State Governments

GENERAL

State legislatures in 1947 dealt with problems resulting from the return to peacetime government and, for the first time in several years, with matters not related to the war or its direct aftermath.

Educational and welfare services, labor relations and workmen's compensation, institutional and highway construction programs, administrative and legislative reorganization, state and local revenues, and veterans' affairs were among the major subjects acted upon in 1947.

Further insight into the kinds of subjects that were important during the legislative year is provided by the interim study topics assigned to legislative research committees and legislative research councils by 1947 legislatures. Results of these studies will form the basis for 1948-49 legislation.

Interim study assignments include only ten inquiries into veterans' affairs in six states, indicating the shift away from matters connected with the war. Sixty-two separate studies of the organization and operation of state government were assigned in 27 states. Some 52 studies dealing with tax and fiscal policy and related subjects are being conducted in 21 states. Thirty-two studies of education and educational facilities were assigned in 22 states. Eighteen inquiries into the field of labor relations, unemployment and workmen's compensation are under way in 12 states. Legislative procedure, state institutions, health and welfare, and the problems of minors and juvenile delinquency are receiving widespread attention.

Legislative sessions were held in all states but Kentucky. These included regular sessions in 44 states, excluding only Kentucky, Louisiana, Mississippi, and Virginia. In addition, the Louisiana, Mississippi, and Virginia legislatures met in special session.

EDUCATION

The nation's educational needs became one of the focal points of legislative attention during 1947. Legislative action regarding teachers' salaries was particularly significant.

More than 30 states legislated to increase teachers' salaries. As a result, American teachers in 1947-48 will receive $350,000,000 more than they were paid in the 1946-47 academic year. Comparable figures for 12 states indicate that salary increases average approximately $450 a year.

Many states, including Indiana, Maine, Pennsylvania, and Texas, passed laws providing higher minimum salaries for teachers. Arkansas raised its minimum to $2,100 for a teacher with a college degree having the teaching certificate for which the degree is required.

Several states provided specific bonuses or other increases. Among these, was the Tennessee bonus of $300 a year to all public school teachers and administrators. Rhode Island granted an annual increase of $600 to each teacher, Georgia increased salaries about 50 per cent, and North Carolina about 30 per cent.

Benefits granted teachers in 1947 included the establishment of a teachers' retirement plan in Vermont, extension of the retirement system in Wyoming, and increased retirement allowances in West Virginia among other states.

In North Carolina, salaries accounted for $102,000,000 of total appropriations of $128,000,000 for public schools; New Hampshire increased state aid to schools some 500 per cent; Idaho appropriated $8,000,000 for public schools as opposed to $3,000,000 for the preceding comparable period; and Massachusetts increased her aid by $25,000,000 annually.

Idaho, Texas, and 21 other states authorized investigations of state educational systems. Measures to reorganize the school system were passed in Idaho, Indiana, North Dakota, and Wyoming. The School Lunch Act was adopted by many states.

HEALTH AND WELFARE

In 1947, Arizona, Iowa, Oregon, and Texas were among the states that authorized hospital construction surveys and provided for state acceptance of Federal funds for such undertakings.

At least three states legislated on the subject of alcoholics. Wisconsin established a bureau of alcoholic studies, and Pennsylvania and Massachusetts formed commissions to study the problem. Alabama, Connecticut, New Hampshire, and New Jersey have been active in this field for some time.

Recent increases in sex crimes led Wisconsin to adopt a law designed to hospitalize potential sex criminals before they can commit crimes. Massachusetts and New Hampshire created study commissions with a view toward future action in this field.

Some 20 states enacted legislation designed to eliminate conditions leading to juvenile delinquency, and to rehabilitate aberrants. A youth service division of the state welfare department was created in Wisconsin; Florida formed a children's commission designed to effect cooperation between public agencies and citizen-sponsored youth welfare services. Youth guidance agencies established in previous sessions were continued in California, Illinois, and New York, and Mississippi set up a system of youth courts. Commissions to investigate youth problems were established in Massachusetts, Michigan, and New Jersey.

Legislation in 1947 added Delaware, Kansas, and Montana to the states requiring pre-marital syphilis examination; Tennessee and Wisconsin provided funds for care of tuberculosis victims. Allowances for the aged, the blind, and dependent children were increased in a number of states.

West Virginia, Delaware, and New York were among the states providing increased funds for local public health activities and for state health and welfare centers.

State welfare administrative reorganizations occurred in Colorado and Montana, among other states, and were primarily designed to coordinate activities.

LABOR

Labor legislation in 1947 dealt primarily with industrial relations and workmen's compensation. Of the legislatures meeting in 1947, more than 25 enacted laws to regulate union activities. No less than 14 states passed laws prohibiting closed shop agreements. Restrictions were placed on secondary boycotts, picketing, and jurisdictional strikes. A number of states adopted legislation regulating labor relations in public utilities.

Various states legislated against strikes or lockouts in public utilities. Arbitration of such union activity was made compulsory in Florida, Indiana, Michigan, Nebraska, New Jersey, Pennsylvania, and Wisconsin. In Florida, Michigan, and Nebraska, among others, injunctions may be used to enforce decisions of the arbitration board. Four states authorized the governor to seize and operate public utilities if labor disputes can not be settled.

"Right to work" or anti-closed-shop laws were enacted in Arizona, Delaware, North Dakota, Texas, and 11 other states. The measures are subject to popular ratification in some states, including North Dakota and Arizona. New Hampshire's enactment, prohibiting union security agreements, applies only to firms with five or less employees. Maine prohibited closed-shop contracts but sanctioned union-shop contracts. Secondary boycotts are prohibited in California, Delaware, Idaho, and eight other states. Laws regulating or outlawing strikes in connection with jurisdictional disputes were adopted in California, Massachusetts, Michigan, Missouri, Pennsylvania, and Wisconsin.

Labors laws in Delaware, New Hampshire, and North Dakota included union registration provisions and the filing by unions of financial reports. Several states adopted legislation providing that labor organizations may sue or be sued.

Connecticut enacted a comprehensive law prohibiting employment discrimination because of race, color, or religion. The only other 1947 legislation of this type was Oregon's (Fair Employment Practices Committee) FEPC law which, like earlier Wisconsin and Indiana laws, is without enforcement provisions.

In the field of workmen's compensation, more than 20 states amended their laws to increase disability and death benefits and to provide additional coverage. South Dakota, Vermont, and West Virginia were among the states adopting the Second Injury Fund Amendment to amend workmen's compensation systems. With the passage of occupational disease laws in Iowa, Nevada, Texas, and three other states, 39 states in varying degrees now protect workers against the hazards of occupational diseases. Other 1947 changes included the payment of compensation in Delaware for the entire period of disability instead of limiting it to 500 weeks, and increased medical benefits for workers in that state and in Iowa, Kansas, Maryland, New Mexico, and Rhode Island.

CHILD LABOR

A number of changes in state child labor laws produced by legislative action in 1947. Alabama became the eighteenth state to establish the basic 16-year minimum age for employment of minors and the Illinois law fixing that minimum age became effective last June 30th. At least 11 states, including Alabama, Kentucky, and New York, strengthened child labor laws. Certain requirements restricting child labor were reduced in a number of states, including Massachusetts and Texas. Some of these states also enacted laws increasing requirements. Child labor study commissions were established in four states.

TAX LEGISLATION

Legislatures in 1947 faced demands for increased appropriations and, with few exceptions, provided additional revenues to finance the business of state government. Except in the realm of individual and corporate income levies where some reductions were realized, the bulk of 1947 tax legislation took the form of increased rates or new taxes.

Individual income tax rates were increased in Colorado, Maryland, and Oregon; Iowa accomplished a similar effect by repealing the 50 per cent credit; Vermont dropped a flat 2 per cent levy in favor of rates graduated from 1 per cent to 4 per cent; New York, on the other hand, continued a 50 per cent reduction sanctioned in 1946; Oklahoma reduced tax rates from 9 to 6 per cent. Personal exemptions were lowered in Colorado, Oregon, and Vermont, and raised in Arkansas and Oklahoma.

Corporate income tax rates were increased in five states and reduced in Oklahoma. Rhode Island added an alternative income base to the present corporation tax and doubled the tax on unincorporated business.

A record number of states enacted

a tobacco tax. Cigarette taxes were doubled in Maine and Pennsylvania and raised in five other states. Gasoline taxes were increased in seven states and in the District of Columbia. Idaho, Michigan, and Pennsylvania enacted new use-fuel taxes. Taxes on distilled spirits were doubled in Wisconsin and Tennessee and increased in several states. Beer and wines taxes were also increased by a number of states.

PROPERTY LEGISLATION

With the adoption of community property laws by Michigan, Nebraska, and Oregon in 1947, 12 states now operate under this concept of property. A community property law enacted by Pennsylvania in 1947 was later declared unconstitutional by the state supreme court.

FISCAL LEGISLATION

The financial problems of local governments in obtaining funds to carry on services led to increased aid by most states and to state authorization of new sources of income for local governments. State efforts to bolster local finances included a Virginia enactment authorizing a bank stock tax; laws permitting cities to impose hotel bill taxes in New York and Rhode Island; and the authorization of numerous additional taxes in New York City. California distributed $90,000,000 of the state reserve to cities; Ohio and Michigan allocated a large share of sales tax revenues to cities; and Louisiana, Rhode Island, and New York provided municipalities with large pari-mutual revenue.

In 1947, debt increases occurred in 18 states, and net reductions were effected in 29 states. Of the 29 states recording declines, New York led, followed by North Carolina, Minnesota, and Maryland.

The total state debt of $2,750,000,000 was $580,000,000, or 25 per cent, higher than in 1946. This increase mainly reflected major borrowing by three states—Illinois, Massachusetts, and Michigan—in connection with financing of veterans' bonus payments and services. Thus in 1947 the downward trend in state debts which began in 1940 was reversed.

VETERANS

The shift in legislative emphasis in 1947 from war-connected to peacetime matters is exemplified by enactments in the field of veterans' affairs. Contrasted with 1945-1946, when the major portion of state legislation dealt with the needs of returning veterans, 1947 veterans' legislation was largely restricted to bonus measures.

State bonus legislation for veterans was enacted by some 21 states in the years following the First World War. With respect to the Second World War, Vermont provided a veterans' bonus in 1942 and New Hampshire in 1943. Several more states took action on this matter in 1945, and a still larger number considered bonus measures at the regular 1947 legislative sessions.

As of December 1947, nine states—Connecticut, Illinois, Massachusetts, Michigan, New Hampshire, New York, Ohio, Rhode Island, Vermont—had approved a bonus for veterans of the Second World War. Bonus referenda in 1948 will be held in Indiana, Iowa, Minnesota, North Dakota, Pennsylvania, South Dakota, and Wisconsin. If all seven states approve present bonus plans, veterans, by 1950, will have received at least $2,000,000,000 from 16 states. So far, Maine is the only state in which voters have rejected a Second World War bonus that had been approved by the legislature.

The Ohio Temporary Soldiers' Vote Law was made a permanent law in 1947; Wisconsin legislators established a Veterans' Housing Authority to deal with the acute problem of housing for veterans; California extended the period in which funds are available for the acquisition of emergency housing, and provided for home and farm purchases by veterans' widows. The Arkansas legislature increased the amount that veterans may borrow to purchase farms and homes from $3,000 to $6,000 because of the increase in real estate costs.

The Minority of Veterans Act was adopted by Indiana, Ohio, North Dakota, Oklahoma, and South Dakota. This law enables Second World War veterans who are minors to obtain benefits under the Servicemen's Readjustment Act of 1944.

HIGHWAYS AND MOTOR VEHICLES

Increased appropriations for construction, the establishment of uniform requirements and regulations, and the enactment of highway safety measures were the significant developments in this field during 1947.

Several states, including California, Georgia, and New Hampshire, authorized construction of new toll roads or the extension of existing turnpikes. Study commissions to recommend highway development programs were formed in a number of states. Highway appropriations were considerably higher than in the past because of the resumption of road construction and the large amount of work deferred by the war and the increased cost of material and labor.

Texas' enactment of the Uniform Traffic Act increased to 33 the states enforcing the uniform act. Prior to 1947, 38 states had enacted the Uniform Motor Vehicle Safety Responsibility Act. In 1947, six states approved amendments to bring legislation closer to the uniform act. Financial responsibility laws were adopted by Florida, New Mexico, and Wyoming.

AVIATION

Indicative of growing state responsibility in developing air facilities, 12 states during 1947 established or expanded their aeronautics commissions.

At least 24 states enacted laws which require the channeling of Federal grants for local airport construction through state aviation agencies. Georgia, Indiana, Maryland, and West Virginia, among others, adopted the Model Municipal Airport Act enabling municipalities to fulfill certain obligations under the Federal Airport Act. Legislatures in Maine, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, and Illinois appropriated state funds for the development of airports.

Model airport zoning legislation was enacted in four states; and Indiana, Kansas, and Missouri adopted reciprocal airport legislation permitting cities to construct and operate air fields in contiguous states. Several states, among them Iowa and South Dakota, enacted air traffic laws providing greater safety for private fliers.

INSURANCE

Insurance enactments in 1947 were designed to regulate concerted practices in the insurance business as well as to regulate and control unfair practices.

Thirty-five states adopted laws to regulate concerted rate-making practices in various fields of insurance. More than 17 states passed laws to safeguard the purchasers of insurance against unfair practices in general.

HOUSING

Housing shortages, especially in urban areas, and the threatened termination of Federal rent controls led to enactments of rent control and housing laws by a number of states.

Following similar action by New York and California, among others, the Illinois General Assembly provided $20,000,000 for direct state aid to city housing and slum clearance programs. Massachusetts became the first state to authorize erection of prefabricated housing on a statewide basis directly under state control and sponsorship regardless of local building code restrictions. Minnesota authorized all municipalities to levy a special redevelopment tax to finance slum clearance. In a previous session, Indiana enacted a similar bill which applied only to Indianapolis.

A number of states in 1947 adopted or extended rent control statutes: Connecticut, Illinois, Maryland, Missouri, New Jersey, New York, Virginia, and Wisconsin.

STATE LEGISLATIVE COUNCILS

Several significant developments occurred in 1947 affecting the administrative and legislative organization of state governments. With regard to legislative organization, Arkansas, Minnesota, Ohio, Oklahoma, Utah, and Washington established legislative councils or research committees. The Oklahoma Legislative Council, originally created in 1939, was activated in 1947. Twenty-three states now have agencies of this kind. The legislative councils of Utah and Washington will function also as the Commissions on Interstate Cooperation of those states. Idaho authorized a full-time Legislative Counsel.

MISCELLANEOUS LEGISLATION

Laws increasing legislators' pay were passed in Alabama, Kansas, Michigan, Ohio, and Pennsylvania. The legislators of California and Illinois were made eligible for state pensions. Many states increased the salaries of public employees. Also in 1947, retirement systems for public employees were set up in New Mexico, North Dakota, Tennessee, Texas, and Washington.

Among numerous state administrative reorganizations was the establishment of a Game and Fish Department in Oklahoma; the creation of a Veterans' Affairs Commission in Texas to replace the Veterans' Service Officer; and the formation in Washington of a new State Parks and Recreation Commission. Activities of development agencies were expanded in several states. Minnesota formed the Department of Business Research and Development; Nebraska created the Division of Nebraska Resources in the Department of Agriculture and Inspection. In California the new State Conservation and Planning Board replaced the Reconstruction and Reemployment Commission.

Finally, in the realm of conservation and resource development, Massachusetts, Rhode Island, and Connecticut approved a new Interstate Water Pollution Control Compact. Washington, Oregon, and California adopted a Pacific Marine Fisheries Compact, and Florida and Alabama approved a Gulf Coast Marine Fisheries Compact.

NATIONAL AND INTERSTATE RELATIONS OF THE STATES

By Frederick L. Zimmermann

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CHANGE IN AMERICAN FEDERALISM

During the past 15 years there has been a marked change in American federalism. Emblematic of this change has been the shift as to the means for determining the relative roles of the national and the state governments. The Supreme Court has retreated from its formerly broad role as arbiter on constitutional grounds, and Congress has been playing an increasing part in making such determinations in accordance with political and pragmatic considerations. On the one hand, judicial interpretation has been freeing the national government in the exercise of its powers and functions from any broad restraints based on narrow constitutional interpretation. On the other, the Court has tended to widen the field of possible state action by confining its limitations on such action drawn from negative implications of the Constitution. The mechanistic concept of a federalism with a rigid segregation of powers and functions is giving way to a more flexible federalism. This trend is a recognition of the basic reality that today functions of government are seldom confined in their administration to one level of government and that the great need is the development of intergovernmental cooperation and integration to secure the most effective administration of those functions.

In its role as an increasingly important forum for the determination of the relative role of the nation and the states in American federalism, Congress, in recent years, has made a number of important decisions. These have been outlined in previous articles on this subject. In some instances, Congressional determination has been negative in refusing to extend direct Federal action. In others, Congressional action has taken a more positive form in that it has established cooperative machinery of the traditional type involving both the Federal and state levels or expressed in definite fashion its decision that a field of government activities is to be administered by the states. In general, however, it is significant that Congress has been reluctant to broaden the scope of direct Federal action. In fact, in some instances, the scope of direct Federal action has been narrowed and replaced by a broader role for the states. In a sense, it might be said that Congress is at present providing a check upon the expansion of direct national action very similar to that of the Supreme Court in the period that ended in the middle thirties. However, Congress is able to express its decision in a more affirmative and positive fashion than was possible in judicial interpretation, as is illustrated by the enactment by Congress of specific consent to state action in the instances of the coverage of maritime workers and, particularly, with respect to the regulation of insurance. The 1945 legislation by which Congress indicated its will that insurance be regulated by the states, following the decision of the United States Supreme Court that insurance was commerce and could be regulated by the national government under its powers over interstate commerce, embodied an outstanding development of the so-called "consent of Congress doctrine" which students of constitutional law consider an indication of the trend of the Court to a broader and more flexible interpretation of the Constitution and a device of marked potentiality in the development of a more cooperative federalism.

While these events have been encouraging to those who have advocated the use of the methods of cooperative federalism and defended the role of the states as against further expansion of direct national action, it must be pointed out that the ultimate success of such intergovernmental coordination and the eventual position of the states in the Federal System will depend in the last analysis on the effectiveness of the states in assuming their responsibilities and upon the establishment of effective channels of intergovernmental cooperation. Public opinion, at the moment, seems to be opposed to centralization, but that opinion in the end will demand effective government. Any evaluation of the present relationship of the national and state levels of government in the American system must consider the degree to which the states are assuming their responsibilities in the cooperative pattern and the extent to which it has been possible to establish machinery for coordination. This is the more clearly indicated when it is remembered that lately there has been a tendency in national legislation to withhold Federal action upon the condition and to the extent that there is effective state action, as in the Federal insurance and airport legislation and as provided in proposed Congressional legislation in other fields, such as forestry and pollution. But whether the condition is specified or not, lack of effective state action will eventually mean the assertion of more direct national control.

THE COUNCIL OF STATE GOVERNMENTS

The leading organization concerned with the implementation of a pattern of cooperative federalism is the Council of State Governments, a joint organization of the state governments completely supported by them. The progress which has been made towards a more closely integrated pattern of intergovernmental relationships in the United States has received major impetus from the existence and activities of this organization. The Council, as established in 1935, has as its basic units the State Commissions on Interstate Cooperation, the official negotiating agencies of their respective governments in national-state and interstate relations. Generally, these bodies follow the pattern originally envisaged in that their membership includes representatives of both houses of the legislature and of the executive branch in order to secure integration within the state government in its negotiations with other governments. Limited at first principally to the states of the northeast, the establishment of such agencies spread gradually to other states. However, initiative and activity on the part of such agencies has not developed in all states to the degree originally planned, and the Council is now making efforts to secure a greater role for these Commissions in those states where there has been little activity.

The early years of the Council were devoted largely to the slow and laborious work of building the machinery of cooperation, effectuating financing by the state governments, and initiating efforts for interstate cooperation. Its early efforts for intergovernmental coordination were confined almost entirely to the interstate aspects. In the period just prior to American entrance into the war, the Council had become sufficiently well established to devote attention to the problem of national-state relations, a basic necessity that was now sharply underscored by the impact of war. Besides the organization embodied in its pattern of Commissions on Interstate Cooperation, the Council had also succeeded in grouping together the most important organizations of state officials, National Association of Attorneys General, Association of Secretaries of State, and Governors' Conference, one of the older agencies for interstate cooperation. Recently, an organization of state budget officials joined this group associated with the Council. With Congress assuming a large part of the role of umpire of the federalism and in view of the strains of the war period upon that Federal System, it became necessary for the Council to represent the position of the states at Washington. Not only has the Council of State Governments come to be regarded as the spokesman for the state level of government at Washington, but as previously indicated, it has been notably successful in that role. During recent years, the principal emphasis of the Council has been on Federal-state relations. It is significant that the Governors' Conference, which previously had been a comparatively innocuous organization, has now become, in association with the Council, the spearhead for expressing the viewpoint of the state governments in their relationships with the national government. In the last few years, a new aspect of the development of the Council of State Governments has become apparent. Since success in maintaining the relative role of the states in the Federal System was so largely dependent on the effectiveness of the state governments in handling the responsibilities they sought, it was quite natural that the attention of the Council should be directed towards improvement of those governments. Accordingly, the Council is now developing into a central agency of the states for investigation, information and recommendation as to the improvement of state government itself. In other words, to the Council's role as the agency of the states in interstate and national-state relations has now been added the role of agency for intrastate improvement. There is no doubt as to the general success and achievements of the Council of State Governments, but it is evident that the scope of its activities are and must necessarily be extremely broad. To achieve the full degree of success in the functions it is seeking to perform, its staffing and consequently its financing must be correspondingly broadened.

As has been outlined in previous articles on this subject, one result of the need during the war period for more effective coordination between the national and state levels of government was the establishment of a more institutionalized channel of national-state communication as embodied in the Committee of State Drafting Officials of the Council of State Governments and the Federal-State Relations Section of the Department of Justice. In essence, this provided a procedure by which the Federal-State Relations Section receives proposals which Federal agencies wish to call to the attention of the states for state legislative consideration. These proposals are considered by the Council's Drafting Committee of State Officials which may ultimately clear them for recommendation to the states by the Council of State Governments. Similarly, the Council of State Governments could forward state proposals requiring Federal cooperation through the Federal-State Relations Section for reference to the appropriate Federal agencies. It should be stated that this machinery, originally devised to meet a wartime need, clearly demonstrated its utility as a media for the normal demands of peacetime legislation. The legislative proposals which it has recommended have been widely enacted by the states. Besides the shift in emphasis from war legislation to more normal and permanent matters, another shift in emphasis would seem significant. The programs of state legislation sponsored by the Council of State Governments are tending to be more largely comprised of measures initiated by the states through the Drafting Committee of State Officials.

FEDERAL-STATE RELATIONS

One of the most prominent mechanisms for Federal-state cooperation is the use of Federal grants-in-aid. The Council of State Governments and the Governors' Conference have insisted that grants-in-aid should be channeled through the state governments rather than made directly to local subdivisions. On the other hand, the Council, of course, has preferred the grant-in-aid method to direct Federal action. In general, the Council has argued for the use of the extant machinery of government rather than the creation of new, parallel, and duplicating machinery.

In 1946, Congress made three major additions to the pattern of Federal grants-in-aid: school lunch, hospital, and airports legislation. Two of these, school lunches and hospitals, followed the normal pattern of grant-in-aid in that they were channeled through the state governments in large part.

AIRPORTS LEGISLATION

The airports legislation varied from that pattern, in that it provided that grants could be made directly by the Federal Government to political subdivisions of the states without reference to state aviation agencies or state airport programs. However, in the course of passage of the legislation, the states as represented by the Council of State Governments, were successful in amending it to this effect: "Nothing in this act shall authorize the submission of a project application by any municipality or other public agency which is subject to the law of any state if the submission of such project application by such municipality or other public agency is prohibited by the law of such state."

Accordingly, the Council has urged all states, not only to expand and perfect their aviation agencies, but to enact legislation specifically requiring that Federal grants-in-aid for airport construction shall be expended in a state only upon receiving the approval of state aviation agencies. The Executive Director of the Council of State Governments reports that a majority of the states have enacted laws which require the channeling of grants-in-aid through state agencies. Some of these, however, are hybrid in that they set up different rules for large cities and smaller units, reflecting in this regard the basic struggle over the airports legislation between the states and the large cities. It should be noted that the Federal Airport Act is being severly criticized and that the Council has been advocating legislation in Congress which would require the channeling of Federal grants-in-aid for airports through state governments.

HOSPITAL GRANTS-IN-AID

The National Hospital Survey and Construction Act, designed to assist the states in planning for and providing the modern hospital and public health facilities on the comprehensive scale needed to serve all groups of the population, also necessitated the passage of legislation by the states. In this connection, the Council recommended two measures for state enactment: State Hospital and Construction Act which included provisions to satisfy the requirements of the Federal law, and a state hospital licensure act which, while not specifically required by the Federal law, was devised as perhaps the best method of meeting the requirement in the Congressional enactment that "if any state prior to July 1, 1948 has not enacted legislation providing that compliance with minimum standards of maintenance and operation shall be required in the case of hospitals which receive federal aid under this title, such states shall not be entitled to further allotments ...."

A large number of states took action with respect to these matters. In some states present state law may have been deemed adequate. The State Hospital and Construction Act was adopted by Arizona, Arkansas, California, Colorado, Illinois, Idaho, Iowa, Kansas, Montana, Nebraska, Nevada, New Mexico, Ohio, Oregon, Tennessee, and Texas. Seemingly, the states are meeting their responsibilities under the hospital grant-in-aid program. Plans of 23 states have been approved by the Federal Public Health Service, and seven additional plans have been received and are in process of review.

SCHOOL LUNCH PROGRAM

In connection with the school lunch grant-in-aid program, the Council recommended the enactment of state legislation in those states where extant state law was inadequate to meet the requirements of Congressional legislation. A number of states have enacted the model state school lunch act. It is significant in the instance of this program, however, that the Congress may not be satisfied with state action in this field. A Congressional conference committee report on the appropriation to carry out the provisions of the national school lunch act for the fiscal year 1948 contained the following paragraph:

"The conferees on the part of both the House and the Senate have agreed to direct attention to the fact that in the consideration of funds for the school-lunch program they have emphasized that it is essentially a local program and that the States have not done their full share in complying with the spirit of the matching provisions contained in the National School Lunch Act. The conferees of both Houses have also agreed to direct attention to the fact that it has been repeatedly asserted that many State legislatures have adjourned without taking action to provide funds in the nature of contributions to the school-lunch program. The conferees on the part of both Houses desire to make it abundantly clear, therefore, that in connection with a reexamination of this matter for the fiscal year 1949, they are now placing the respective States on notice with respect to their obligations under this program and that failure of the State legislatures to act in the premises will have no effect in determining the future requirements of this program."

THE FEDERAL POSITION

Probably the outstanding question in the immediate future of Federal-state relation is that of Federal grants-in-aid. The present Federal grants-in-aid program has long been criticized on the grounds that it was not systematic nor related, but had developed in an *ad hoc* fashion with respect to certain problems of government in response to pressure for action on the particular problems involved. On the Federal side, a congressional committee, during the last session, pointed to the present amount of grants-in-aid and the substantial increase in the amounts of Federal monies expended for this purpose and alleged that the state governments were in better condition with respect to their fiscal affairs than the Federal Government. The committee also pointed to the lack of uniformity in the various methods of apportioning aid under grants-in-aid legislation.

POSITION OF THE STATES

On the state side, the Governors' Conference and the Council of State Governments have been pressing for a reappraisal of the whole present program of grants-in-aid, pointing out, on the one hand, that the programs have no relation to each other, with the result that there is a different policy, program, and administrative procedure with respect to almost every activity, and the net result is overlapping, duplication, and confusion. The Council has undertaken a study of the whole question of grants-in-aid and plans to establish a continuing committee to work with Federal departments and agencies in an effort to bring order to the Federal-state relations involved in grants-in-aid. This issue may well assume major importance in the immediate future of Federal-state relations.

STATE ATTITUDE IN UNEMPLOYMENT INSURANCE

In this connection, the attitude of the states, as expressed by the Governors' Conference, with respect to unemployment insurance is significant. In the present system of administration of unemployment insurance, state unemployment insurance systems are financed by a payroll tax which Federal law permits to be used as a set-off to the extent of 90 per cent of the Federal payroll tax for this purpose. The 10 per cent collected by the Federal Government is levied for the purpose of raising revenues for the administration of workmen's compensation, but goes directly into the Federal treasury and is appropriated to the states by means of grants-in-aid for the administration of unemployment compensation.

The states have been bitterly critical of this procedure. They argue that the national Social Security Agency does not allocate adequate funds to permit efficient and economical administration of unemployment compensation and that the Federal Government has built up over the period of the past 12 years a surplus of approximately $700,000,000 out of the segregated tax. The Governors' Conference and the Council of State Governments in 1947 urged that, since unemployment compensation and the employment service programs are administered by the various states, and the Federal tax on employers is levied for the purpose of raising revenues for such administration, the revenue collected thereunder should be allocated among the several states. It is recommended that the states be granted 100 per cent rather than a 90 per cent set-off against the Federal tax for the purpose of providing both benefits and administrative costs under the unemployment compensation act. This, of course, would necessitate adjustments to protect that limited number of states which would thereby receive less revenue than is adequate to cover necessary administrative costs.

It was contended that such adjustments would readily be made for an indefinite period from the surplus which had already accrued to the Federal Government during the past 12 years. In this same field, it is notable that the President's reorganization plan, which would transfer the United States Employment Service permanently to the Department of Labor where it is now temporarily located, was disapproved by the Congress upon the representations of the officials of 33 states who urged the return of the U.S.E.S. to the Federal Security Agency on the grounds that it was inefficient to separate Federal placement activities from the unemployment compensation activities of the Federal Security Agency, particularly when at the state level the two activities are merged. They argued that the proposed reorganization would require state administrators to deal with two separate sets of Federal officials.

TAXATION

Another major problem, that of overlapping taxation, it now seems may be the subject for definite action within a reasonable period. However, it must be admitted that previous attempts to meet this important problem have made little progress. The Council of State Governments emanated from efforts toward this end by the American Legislators' Association when, in 1933, that organization created the Interstate Commission on Conflicting Taxation. Since that time, the efforts of the Committee on Taxation of the Council of State Governments, the Committee on Intergovernmental Fiscal Relations established in 1941 by the U. S. Treasury Department, and the joint committee established by the National Tax Association and the American Bar Association have achieved little in terms of results translated into governmental action. The problem, in the meantime, has been growing steadily worse. Municipalities are financially hard pressed. In 1946, it was estimated "90 per cent of total federal and state tax collections, exclusive of payroll levies, came from sources used by both these levels of government." This problem may well be sharpened by the greater need of states for more revenue in the immediate future. While the states generally have reduced their debts and in many cases have built up sizable surpluses and while state tax revenue rose again in the fiscal year 1947, the pressure of preferred expenditures may, in relation to other possible economic factors, compel the states to seek greater revenues.

In 1947, however, for the first time, representatives of the state governments and the national Congress came together for the purpose of initiating steps toward some agreement on this problem. Following a preliminary meeting in March between a special committee of the Governors' Conference and members of the Ways and Means Committee of the House of Representatives and the Finance Committee of the U. S. Senate, representatives of these groups met in an initial conference under the auspices of the Council of State Governments in September. The conference agreed to a group of definite recommendations, namely:

> "1. That the federal government should reduce federal excise taxes as soon as practicable (special consideration should be given to local telephone calls, intrastate electric energy, gasoline and admission taxes);
>
> "2. That the federal government should amend inheritance and estate taxes to provide more equitable division of this revenue between the federal government and the states;
>
> "3. That the federal government should relinquish to the states the federal tax on employers levied to cover the administrative expenses of the state employment security programs, and the states will assume the responsibility for the administration of the unemployment compensation and employment service programs;
>
> "4. That the Congress take the earliest possible action to correct by federal law the income tax inequities existing between the community property and the non-community property states;
>
> "5. That the states should avoid encroachment upon tax fields which are peculiarly adaptable to federal uses."

It is planned that this first meeting will be followed by others in an effort to achieve an even broader area of agreement. The meeting marks a step in advance in this field, first, because members of the pertinent committees of the national legislature are taking part in the effort and, second, because the effort is being jointly participated in by both levels of government. Moreover, it is, in itself, a recognition of the importance of the Council today in Federal-state relations. Recognition of the role of the Council at the national level of government was also indicated by the fact that the Council was the governmental agency requested to serve on the Senatorial Council charged with revision of the Social Security program in the United States and that at the request of Federal officials it has undertaken a study of Federal-state relations as a part of the overall project for the reorganization of the Federal Government.

While the Federal-state aspects of the problem of intergovernmental conflict in the field of taxation are a responsibility of both levels of government and, realistically, primarily of the national government, the states have clear responsibility in the interstate phases of the problem. It must be admitted that the progress of the states towards the solution of these interstate problems has not been satisfactory. While the Council of State Governments, in 1947, following a recent decision of the Supreme Court which limited constitutional restrictions on multiple state taxation of air carriers, recommended the enactment of a model law on that subject by the states, seemingly only two states have so far enacted the recommended legislation designed to clear up questions of multiple taxation, with respect to air carriers. Similarly, though a regional conference of the northeastern states in 1941 and the National Conference of Commissioners on Uniform State Laws recommended model measures for the compromise and arbitration of disputes as to so-called "double domicile" questions in inheritance taxation, progress has been limited. However, a recent survey of state enactments in this field showed that a large number of the states represented in the original regional conference had enacted at least one of the two measures proposed, and there seems some chance that efforts in this field will be shortly resumed.

INSURANCE

Probably one of the most important tests of state effectiveness in the Federal system is that involved in insurance regulation. It will be remembered that in 1944 the United States Supreme Court held that insurance is commerce and that it comes within the purview of Federal regulation under the commerce clause of the Constitution. This decision threw into doubt the whole system of state regulation that had been built up on the basis of judicial interpretation over a period of 75 years to the effect that insurance was not commerce and was, therefore, subject to state regulation. Early in 1945, Congress enacted legislation in which it stated its intent that insurance should be regulated by the states and granted a moratorium on the operation of the Sherman Act, Clayton Act, Federal Trade Commission Act, and Robinson-Patman Anti-Discrimination Act until Jan. 1, 1948, and provided that after that date those laws were to be applicable to the business of insurance to the extent that such business is not regulated by state laws.

Committees of the National Association of State Insurance Commissioners and the Council of State Governments and a so-called "All Industry Committee" representative of the various divisions of the insurance business undertook to prepare state legislation to meet the requirements of the Federal act. Their efforts were directed in the main towards two objectives: establishment in the states of the machinery for state regulation of rates and enactment in those states, where such provisions did not already exist, of fair trade legislation applicable to the insurance business. In 1947, Congress extended the moratorium until June 30, 1948.

It seems evident that the states have made considerable progress during the "legislative" year of 1947 when 47 state legislatures were in session. The Committee on Insurance of the Council of State Governments reports the result as follows:

"Among the states, 35 states enacted rate regulatory laws in 1947. The laws adopted by 15 states—Arkansas, Connecticut (replacing 1945 law), Georgia, Illinois, Iowa, Kansas (fire only), Minnesota, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Carolina, South Dakota (replacing 1945 laws), and West Virginia (certain fire and marine fields)—follow closely the bills proposed by the NAIC—All-Industry Committee, according to a recent study by the Insurance Law Section of the American Bar Association. In another 14 states, laws adopted follow the proposed bills with certain variations—Arizona, Colorado, Delaware, Idaho (fire), Indiana, Maine, Massachusetts, Michigan, New Hampshire, Ohio, Pennsylvania, Utah, Wisconsin, and Wyoming. Laws adopted in 6 states—California, Florida (supplementing 1945 law), Montana, New Jersey (supplementing 1944 law), Vermont (adding casualty regulation), and Washington—provide for different patterns of rate regulation. In addition, casualty and surety rate regulatory bills were pending in Missouri when the 1947 session adjourned.

"As a result of rate regulatory legislation in 1947 and preceding years, 43 states have enacted laws applicable to the casualty and surety business, and even more have adopted laws applicable to the fire and marine business.

"Seventeen states—Colorado, Connecticut, Delaware, Florida, Indiana, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, New Mexico, New York, South Carolina, Vermont, Washington and Wisconsin—substantially adopted the accident and health regulatory bills drafted by the NAIC—All-Industry Committee group.

"The Insurance Committee recommended strengthening of state regulation of unfair practices in the insurance business, along lines indicated by the joint proposals of the NAIC and the All-Industry Committee. Fifteen states—Florida, Indiana, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, New Jersey, New Mexico, Pennsylvania, South Carolina, South Dakota, Tennessee and Wisconsin—adopted laws based on these proposals. In addition, Utah and Washington covered the field of unfair practices in new insurance codes enacted in 1945. More than a score of states had unfair practice laws applicable to insurance on the statute books prior to 1947.

"The states have given concrete evidence of their intention to maintain their traditional jurisdiction in the field of insurance regulation. Almost all of them have made the important decisions of policy as to the lines along which such regulation will be carried on in the future. And they have legislatively outlined the procedures to guide the administration of these policies."

While the states have made considerable progress towards providing the necessary legal structure to meet the requirements of the Federal legislation, it is more dubious as to whether state administration will meet those requirements, in that many states are not adequately equipped for the technical work involved in rate regulation. The Council of State Governments is now devoting attention to this problem and is considering several methods of achieving the objective through interstate cooperation. One method would be to divide specific functions among operating states and to share the results on an informal basis. Another would be for a few states to undertake the technical work and the other states to borrow or purchase the results. A third method would be the use of the interstate compact procedure to set up a central interstate agency for rating purposes.

Seemingly, the next phase of state efforts in this field will be directed towards this problem of administration.

NATURAL RESOURCES—FORESTS

The recent reappraisals of the forest situation in the United States by the United States Forest Service and the American Forest Association were in basic agreement on the serious depletion of American forests and the excess of drain on sawtimber over annual growth. While there was agreement on the need for action, state control as against Federal control of the cutting of timber on privately owned forest lands emerged as the dominant issue of discussion at the American Forest Conference in October 1947. Federal officials suggest legislation at the national level which would give the states a reasonable time in which to establish by state law the regulation of harvesting methods applicable to private forest property, but under a Federal standard of forest practice that would be subject to Federal supervision and enforcement. In the event that a state failed to act within that period, the Federal Government would be empowered to step in and regulate directly. Labor has been advocating even more direct Federal regulation, while the states have been urged by the Forestry Committee of the Council of State Governments to enact state regulatory legislation for this purpose. While some states, such as Maryland and Oregon, have enacted regulatory legislation and while others, such as New York, have tried to approach the problem through efforts to secure the cooperation of the private landowner, it must be said that on the whole the state action so far taken would seem insufficient to meet the needs of a serious if not a critical situation.

In the meantime a demand has arisen from the public land states of the West that Federal lands in those states be transferred to state administration. This was activated by pressure groups who feel they would benefit from such transference. It was also related to the problem of Federal payments in lieu of taxation which Congress has not as yet solved in any concrete fashion and to the feeling in the so-called public domain states that the economic development of those areas is being retarded by Federal land ownership.

LAND UNDER NAVIGABLE WATERS

A similar issue was at stake with respect to the ownership of land beneath navigable waters. It will be remembered that Congress passed legislation in which it asserted that the states owned the land under such waters following the raising of the issue with respect to the oil under the marginal sea off the coast of California, but that the President vetoed the Congressional legislation on the grounds, in part, that the Supreme Court should be given an opportunity to pass upon the issue in the case that had already been initiated before that body. More recently, the Supreme Court decided in favor of the Federal Government (*United States vs. California,* 67 S. Ct.1658) and in its opinion stressed the need for paramount national powers with respect to such land for the purposes of national defense and international affairs. As a consequence of this decision, the Council of State Governments, the Governors' Conference, and particularly the Association of Attorneys General will press for legislation in the forthcoming session of Congress which will have the effect of restoring state jurisdiction over these matters. The decision of the Court recognized that the ownership of tidelands is still a question that Congress may decide.

RIVER DEVELOPMENT

In the field of water resources Federal flood control and rivers and harbors legislation enacted since 1944 has provided for Federal-state consultation and cooperation in the planning of river development as demanded by the states in the struggle in Congress at that time. All of the states have created agencies or designated officials to maintain contact with Federal agencies in accordance with the concepts of this legislation. A Federal interagency river basin committee has been established, comprised of representatives of the pertinent Federal agencies with the purpose of providing a means of exchange of information and coordination of activity among Federal agencies and the maintenance of liaison with regional interagency committees, such as those which are operating in the Missouri and Columbia Basins. In response to suggestions by the Council of State Governments, the Federal committee on its side has created a group to maintain state liaison, while the Council through its Washington Office maintains a channel of immediate communication with the Federal committee.

In 1946, at the request of the Missouri River States Committee, the Council worked with representatives of the four states of the lower Missouri River Basin—Iowa, Nebraska, Missouri, and Kansas—to develop ways and means of enabling those states to comply with the requirements of the Flood Control Act of 1944 with respect to public works for flood control. Recommendations for suggested legislative action were developed and transmitted to the proper officials and agencies in the four states. During their 1947 legislative sessions, Kansas, Iowa, and Nebraska enacted legislation including the recommended authorizations. On the state level, the Water Resources Committee of the Council has undertaken a summary of all state laws on this subject with a view to formulating recommendations for state action.

POLLUTION ABATEMENT

The long continued struggle in Congress over the shape which Federal pollution legislation should take with Federal agencies leaning towards more direct forms of action and the states in the main favoring Federal grants-in-aid, more or less in the traditional pattern, may be reaching a compromise that can be enacted. The Barkley-Taft bill passed in 1947, includes provisions for grants-in-aid and for Federal interest-free, second lien loans for engineering work. Federal enforcement of pollution abatement orders would be provided only after efforts by state authorities had been exhausted and then only with state consent. On the state level, considerable progress in the enactment of pollution abatement legislation has been made during the past few years, notably in the instance of the legislation passed in Pennsylvania, Rhode Island, and Virginia. Three of the New England States entered into a compact establishing an interstate agency designed to develop measures for the New England area and to recommend appropriate action to the member state.

An unfavorable situation with respect to joint state action as to a river basin exists in the case of the Delaware. While the Interstate Commission on the Delaware River Basin has been largely successful in securing agreement on pollution abatement for that river, which, following action by Philadelphia, is now in the process of being translated into actual results, the agreement among New York, New Jersey, and Pennsylvania with respect to the allocation of the waters of that river has run into difficulty seemingly because of differences between the Attorney General of New York and the Attorneys General of the other states.

HIGHWAY SAFETY AND MOTOR VEHICLE REGULATION

In the field of highways and motor vehicle regulations the states were severely criticized during 1947, particularly with respect to the inadequacy of state regulation relative to safety. The President in his address opening the Second President's Highway Safety Conference, in June 1947, applauded the decline in the highway fatality rate and said that the states have made unusually good progress in the field of safety education, but pointed out that the driver license part of the program was not keeping pace and that the states had reported little or no progress during the year since the previous conference in raising standards of motor vehicle administration. The President said that, while there was no desire on the part of the Federal Government to encroach upon state jurisdiction in this field, Congress would not stand idly by in the face of the grievous national accident toll. On the state level, the northeastern region, through its Annual Highway Safety Conferences, continued to make progress towards the goal of greater uniformity in state motor vehicle laws and greater traffic safety. Continuing committees of that Conference are studying the questions of motor vehicle reciprocity, uniform pavement marking, and uniform truck registration. During the year, the Regional Conference developed a series of recommendations with respect to uniformity of state provisions relative to school buses in an effort to limit the accident toll in connection with these vehicles.

INTERSTATE COOPERATION

The interest of the Council of State Governments and the Governors' Conference in recent years has centered principally on the problem of Federal-state relations and, consequently, on the improvement of state government. While it is becoming increasingly difficult to segregate fields of intergovernmental relations because of the tendency for any particular function of government to become the concern of all levels of the American governmental structure, there are problems and methods which may be denoted as interstate because they primarily are concerned with integration of that character.

Projects of interstate cooperation have continued to develop, some of them under the aegis of the Council, and, interestingly, a number of them without the sponsorship of that machinery for interstate cooperation which is collectively designated as the Council of State Governments. It is probable, as may be discerned in what has been reported as to Federal-state relations, that solution of some Federal-state problems will require further development of interstate coordination. In addition, the activation of the Commissions on Interstate Cooperation in more states and the reorganization of the regional groupings of those Commissions as now being undertaken by the Council may increase the initiation of projects of interstate cooperation on the regional level, a result that would seem very desirable since it was the success of such regional activity in the northeast that rooted interstate cooperation firmly in that region before the Council had achieved its present prominence in the national scene.

The relationship which has been established between the Council of State Governments and that older and more limited organization for interstate cooperation, the National Conference of Commissioners on Uniform State Laws, seems to have attained a fairly permanent basis. In essence, that relationship recognizes the National Conference as an initiating and drafting body for uniform state laws, while the Council acts as the agency for securing enactment of the recommended measures through the state cooperation commissions. In the past, the weakness of the Uniform Law Commissioners has been their failure to secure adoption of their proposals due to the lack of close relationship of their organization to the legislative bodies of the states. Since the development of the present teamwork between the Council and the National Conference the ratio of adoption of recommended uniform measures has been increased to a marked degree.

At the 1946 Annual Conference of Commissioners on Uniform State Laws, commissioners from 30 states and the District of Columbia made reports and presented plans for the 1947 legislative sessions. In those sessions, 80 uniform or model acts were introduced and 42 adopted. In 1945, 83 acts were introduced and 45 adopted. In 1943, 162 acts were introduced, of which 80 were adopted. In 1941, the score was 201 and 80. In summation, it would seem that greater progress is being made with respect to the adoption by the states of uniform laws as recommended by the National Conference.

INTERSTATE COMPACTS ON FISHERIES

The use of the interstate compact, proposals for its use, and the range of proposed subject matter seems to be steadily growing. In this connection, it should be remembered that, until the First World War, use of these interstate treaties permitted by the United States Constitution, subject to the consent of Congress, had been extremely limited. On the Atlantic coast, the Atlantic States Marine Fisheries Commission, established by compact among 14 states continued to make progress towards better integration of state regulation of the marine, shell, and anadromous fisheries of the Atlantic Seaboard. The Commission is considering two proposals for amendment of the original compact to meet the need for further coordination of state action in that area.

The Pacific Coast states of California, Oregon, and Washington established similar cooperative machinery in 1947 by a compact which was ratified by Congress. It is significant that an amendment to the Congressional ratification act designed to assure the presence at meetings of the Pacific Marine Fisheries Commission of representatives of the Federal Fish and Wildlife Service was rejected by Congress after protest by the compacting states. Similarly, the legislatures of Florida and Alabama adopted a Gulf Coast Compact of similar design. Texas failed to act.

A joint commission appointed by the Governors of Virginia and Maryland has recommended the establishment of joint regulation of the fisheries of the Potomac River and the Chesapeake Bay under a compact between the two states for that purpose.

OIL COMPACTS

Legislation was enacted to extend Congressional consent to the Interstate Oil Compact for another four years until September 1, 1951. During 1947 Indiana and Tennessee became the 18th and 19th member states of this Interstate Compact Commission which in its state membership now represents 90 per cent of the gas and 80 per cent of the oil production of the United States.

POLLUTION CONTROL COMPACTS

Massachusetts, Rhode Island, and Connecticut ratified the New England Pollution Control Compact in their legislative sessions and Congress granted its consent. The compact establishes an interstate agency to consider plans and procedures for the abatement of pollution in the New England region and to formulate recommendations to the compacting states. It envisages ultimate ratification by Maine, Vermont, and New Hampshire in addition to the present member states and membership by New York with respect to those boundary waters now already governed by extant pollution compacts. The Interstate Sanitation Commission, established by compact among New York, New Jersey, and Connecticut, with authority to abate the pollution of the waters of New York harbor and adjacent areas, took a significant step during the year. Previously, this Interstate Commission has sought to achieve its purposes through persuasion; now for the first time it has brought an action against some New Jersey municipalities to compel them to meet the standards of the compact.

SUPERVISION OF PAROLEES AND PROBATIONERS

Probably one of the most noteworthy compacts in the history of the American union and certainly the one including the most states is the Interstate Compact for the Supervision of Parolees and Probationers. The compact has been ratified by 41 states. Missouri and South Dakota were the most recent additions. The compact provides means of granting probationers and parolees the privilege of moving outside the state in which they were sentenced and into other jurisdictions where they may have better opportunities for adjustment and establishes supervision of such persons by the state into which they move. All legal requirements for extradition are expressly waived by the states under the compact and by the parolee under a waiver of extradition which is made a condition of his transfer to another jurisdiction.

The Council of State Governments acts as secretariat for the Association of Administrators of the Interstate Compact for the Supervision of Parolees and Probationers which was formed in 1945 to provide a means through which interpretation of the compact and administrative policy and coordination could be acted upon through some continuing central medium. Through the work of this organization, rules, regulations, and forms to standardize operations have been provided and are in use by the compacting states. A reporting system was developed and used for the first time in 1947. Thirty-eight of the 41 states have developed the methods and procedures necessary to supply comparable statistics. It is reported that 5,702 parolees were under cooperative supervision on Oct. 1, 1947.

JOINT STATE WELFARE INSTITUTIONS

There are several recent interesting proposals for the use of the compact method. Under the aegis of the Council of State Governments, the states of the western mountain region have been considering the use of interstate compacts as a means of establishing joint state institutions in the welfare field instead of each state endeavoring to maintain its own institutions for each purpose. Definite progress has been made on this proposal by the states. A similar plan is being advocated in the South for the establishment of regional institutions of higher learning.

MILK COMPACTS

Another proposal, sponsored by the milk producers marketing in the New York Market area comprising New York City and Westchester, Nassau and Suffolk County would have established an interstate board by compact among the five states of New York, New Jersey, Pennsylvania, Massachusetts, and Vermont. This body would have the power to fix the prices to the producers in those states for milk destined to the New York Market area in the event that the present joint regulation of this subject by the national government and New York State through marketing orders lapsed. Legislation to permit milk administrators to sign this compact was enacted by Vermont and Pennsylvania. The pertinent administrative officials of New Jersey and Massachusetts signed the document under the authority of old statutes. Because of the use of administrative ratification, questions have been raised as to whether this is an interstate compact in the usual meaning of that term.

STATE CONSTITUTIONS, REFERENDA AND INITIATIVES

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GENERAL

A relatively small number of states make a practice of holding state elections, either general or special, in odd numbered years. Of the 11 states that voted on constitutional or other questions in 1947, all had done so also in at least one of the last five "off-years." On the other hand, only ten states not included in the 1947 list have voted on legal questions in off-years during the past decade, and only four of these have repeated the practice on two occasions or more. Georgia and Missouri, frequently among the "off year" states in the past, were missing from the most recent list, apparently because of their new constitutions adopted in 1945.

The number of questions voted on (30) was the same as in 1945 (in 12 states), but the kinds of questions and methods of initiation were more varied. One constitution was adopted, and two states voted on the question of holding constitutional conventions. Eighteen constitutional amendments were voted on, 17 having been submitted by legislatures and one by initiative petition. One legislative measure was referred to the voters by petition; four bond issues and three other legislative measures were referred by legislatures. One question was referred by a state legislature for an advisory referendum.

In addition to these 30 questions, four amendments were proposed by the legislature of Connecticut to be voted on at town elections. However, the voting process continues into the following year and so these measures are not included under the heading of action taken in 1947.

Only five of the 11 states held their elections on the traditional second Tuesday of November. Wisconsin's vote was taken on April 1 and Michigan, April 7. Rhode Island held its election on June 23; Texas and Alabama, Aug. 23 and 26, respectively; and Oregon, Oct. 7. New Jersey held two elections, June 3 and Nov. 4.

On the whole the measures that were submitted met with relatively favorable reception from the voters. Only two constitutional amendments were defeated, and two legislative measures, one of the latter after a referendum petition and the other on reference by the legislature. In addition, the voters of Kentucky refused to call a constitutional convention, and the Wisconsin electorate "advised" the legislature not to enact a daylight savings law.

NEW JERSEY CONSTITUTION

In 1944, after having authorized the legislature to prepare and submit a new state constitution, the electorate of New Jersey followed the advice of Mayor Hague and refused to approve the constitution that was submitted to them. In 1947, a new constitution was adopted. The state acted with surprising speed, by calling a convention, holding a convention, and adopting a new constitution, all within a period of five months and a day. The question of holding the convention was submitted to the voters by the legislature, and approved June 3. The convention met almost immediately, and on Sept. 10 the new document was completed and signed by the delegates. The proposed constitution received the support of both major parties, and on Nov. 4 it was adopted by the electorate.

Perhaps the most important of the changes in the basic law of New Jersey were those that increased the authority of the governor. His term of office will hereafter be four years instead of three, and he will be permitted to serve two terms in succession. His veto power will be strengthened by the requirement of a two thirds vote in each house of the legislature to override instead of the previous majority vote; also he will have a longer period in which to consider legislative measures presented to him for approval. He will have ten days during a session, and 45 days at the end of a session. However, the pocket veto is eliminated completely, for if the governor vetoes a measure after adjournment the legislature automatically reconvenes at the end of 45 days for the purpose of reconsidering the vetoed act. The governor's administrative authority is strengthened by the provision that there shall be not over 20 executive departments, and that these departments shall be headed by single executives unless otherwise provided by law. All executive officers other than the governor will be appointed, and only two, the attorney general and the secretary of state, are given constitutional status. The state auditor will be chosen by the legislature and will be outside the executive branch of government.

Legislative terms will be lengthened

by one year, thus bringing the state into the usual pattern of two- and four-year terms. The elections will be held in odd-numbered years, however. The compensation of members of the legislature will be fixed by law.

The court system was reorganized and simplified at the top level, but the dual system is retained at the trial court levels. Judges will be subject to removal by impeachment or by action before the supreme court, and they may be retired at 70 or for incapacity. New judges will be appointed by the governor and the senate for seven-year terms. Reappointments will be for "good behavior."

Only minor changes were made in the county governments. The convention was prevented, by legislative restrictions, from altering the territorial limits of any county, and thereby from altering the representation in the legislature. Several of the traditional elective county offices were retained, but the coroners and justice of peace courts were abolished.

A few significant social and economic measures were incorporated into the new constitution. Racial segregation in schools and in the militia is prohibited. The right of labor to organize and to bargain collectively in private employments is guaranteed. In public employment, workers have the right to organize and to make grievances known.

Amendments to the new constitution may be submitted to popular vote either by a three-fifths vote of each house in a single legislature or by a majority vote in each of two successive legislative years.

NEW YORK AMENDMENTS AND REFERRED MEASURES

Exclusive of the New Jersey constitution, the longest question ballot of the year was presented to the voters of New York, who passed on six constitutional amendments and three referred legislative measures. All of the proposals were approved, some only by reason of strong support in New York City.

The most publicized constitutional amendment was the one that authorizes the creation of a state debt of $400,000,000 to provide a bonus for veterans of the Second World War. A second amendment authorizes the legislature to fix the compensation of its own members; a third extends the application of the absent voting law to primary and special elections, and simplifies its administration; and a fourth creates an additional judicial district. A Court on the Judiciary is created by a fifth amendment and is given authority to pass on the removal of judges and on their retirement for mental or physical disabilities. A sixth amendment authorizes the legislature to provide for the construction of additional ski trails in the state forest, which, in the absence of constitutional exceptions, must be preserved solely as forest land.

The three legislative measures authorize an increase in state debt in order to provide funds for loans to cities and towns for slum clearance and low cost housing programs, and increase the maximum limit on outstanding contracts for housing projects. Thus for the third successive year the voters of New York have authorized an increase in state subsidies for low cost housing.

OHIO CONSTITUTIONAL CHANGES

Ohio ranked next to New York in the number and importance of constitutional changes made in 1947. Three amendments were proposed by the legislature and one was brought before the voters through popular initiative. All were approved. Like New York, Ohio adopted a war veterans' bonus amendment and authorized a bond issue to finance the program. The rate of compensation will be $10 for each month of service in the United States and $15 for each month of foreign service, with a maximum of $400 to any one person. The second amendment submitted by the legislature alters the constitutional provisions regarding the terms of office and compensation of probate judges, and the third adds the governor and the state treasurer to the membership of the sinking fund commission. Formerly the membership included only the secretary of state, the attorney general and the state auditor.

The popularly initiated amendment follows the pattern of the "good roads amendments" adopted by several other states in recent years. Hereafter the revenues derived from motor fuel taxes and other motor vehicle fees and taxes may be used only for highway building and maintenance, traffic law enforcement, hospitalization of indigent victims of motor vehicle accidents, and for the payment of costs of administering the highway taxes and fees.

ALABAMA

Alabama, like Ohio, adopted four constitutional amendments, but three of them were local in character, pertaining to specific counties. The legislature was authorized to change the compensation of certain officers in two counties, and one county was authorized, on popular vote, to levy a tax of four mills in order to construct and operate county hospitals. The fourth amendment allocates the proceeds of the state income tax to specific uses. Income tax revenues collected after Oct. 1, 1947 must be used first to offset the loss of income due to the $2,000 homestead exemption from property taxes, after which such balances as remain are allocated to the Special Educational Trust Fund to be used for the payment of teachers' salaries.

TEXAS

Texas adopted a constitutional amendment for the promotion of higher education. By this amendment, bond issues are authorized to finance building programs at 16 institutions of higher learning. The state university and the agricultural and mechanical college are authorized to issue bonds for $10,000,000 and $5,000,000, respectively, against future revenues of the permanent university fund. For the other 14 institutions a state tax levy of one-half mill is authorized, and the governing bodies are authorized to issue bonds against their respective allocated shares of the resulting tax revenue. The amendment was approved by a margin of about 5,000 votes out of 200,000.

MICHIGAN AND OTHER STATES

The Michigan electorate approved an amendment which will eliminate the necessity of holding a non-partisan primary election for judges when the number of candidates is not in excess of twice the number to be elected, but a proposed amendment which would have increased the ten-year limit on the time that corporations are permitted to hold real estate not actually occupied in the exercise of franchise was rejected.

Pennsylvania voters also rejected a proposed amendment, this one designed to authorize an increase in state debts. The Kentucky electorate voted down a proposal to call a constitutional convention.

Three state bond issues were authorized by Rhode Island: one to finance a sewer project and the other two for the construction of buildings at the state college.

The voters of Oregon rejected two tax measures. A proposed 3 per cent sales tax referred to the voters by the legislature was defeated by a vote of almost 3 to 1, and a cigarette tax levy referred by petition after legislative enactment also was defeated. A cigarette tax had been referred and voted down in the same manner in 1945.

SUMMARY

A review of the measures voted on in 1947 reveals that half of them were concerned directly with state and local finances. Three of the amendments authorized new bond issues, and one proposed authorization was defeated. In addition, four legislative measures were bond issue authorizations. Two of the constitutional amendments dealt with the allocation of state taxes, and one with local tax limits in a metropolitan county. Two legislative tax measures were defeated on referendum votes, while two state subsidy measures were approved.

Two of the amendments dealt with the electoral process, three with judicial organization and powers, one with administrative organization, and one with legislative compensation. Two amendments of local application concerned the terms and compensation of county officials. Measures of miscellaneous character included an amendment to the New York restrictions on the use of state forest lands, a proposed amendment dealing with the rights of private corporations, and an advisory vote on daylight savings. Two states voted on state constitutional conventions. One of these, New Jersey, adopted the proposal, held its constitutional convention, and approved the new constitution which the convention prepared. That action was far and away the most important electoral decision on any question ballot before the voters in 1947.

ELECTORAL LEGISLATION

By O. Douglas Weeks
Professor, The University of Texas

GENERAL

Election laws were enacted during 1947 in 45 states. Some notable innovations were made in a few states, but most of the legislation was amendatory in character. California, Colorado, Indiana, Maryland, New Jersey, and Ohio altered their election statutes as to numerous details. Significant primary enactments were made in Rhode Island, Utah, and Mississippi. North Carolina passed a few amendments. Wisconsin created a special joint committee to study needed revisions in her electoral arrangements.

DIRECT PRIMARY—RHODE ISLAND AND UTAH

The most noteworthy enactment of the year was the substitution by Rhode Island of a statewide mandatory direct primary system for nominations by caucuses and conventions. All nominations by all parties for elective offices—national, state, district, city, and town—must be made in primaries. Party conventions may endorse primary candidates whose names are to appear first on the ballot; others become candidates upon personal declaration and by nomination papers signed by from 50 to 1,000 party voters depending upon the office. Party primaries are to be conducted separately. Primaries are "closed" by means of party enrollment; challenging is also permitted. Nominations are to be by plurality. In cases of failure to make nominations, tie votes, and vacancies, nominations are to be made by state and local party committees. State conventions, to be held biennially, are retained to nominate presidential electors and frame platforms; they are to consist of nominees for national and state offices plus one delegate elected in the primaries from each representative district. Caucuses are retained only for school board nominations. Penalties are provided for enumerated corrupt practices. Primaries are to be construed as elections.

Utah abandoned the run-off primary and provided for county, district, and state party conventions to nominate two candidates for each elective office whose names are to go on the party primary ballot. Convention delegates are to vote individually on official ballots in private booths for such candidates while conventions are in session. Their choice is limited to those candidates who have filed with the Secretary of State or the county clerk. The two persons receiving the highest vote for each office are to run in the primary as the party's candidates. Party executive committees are to be chosen in convention. The primary date was moved from July to September. Changes were also made in nominating methods for city offices.

SOUTHERN PRIMARIES

In an obvious effort to prevent Negroes from participating in Democratic primaries, Mississippi authorized state executive committees of parties holding primaries to "make reasonable rules and regulations that will insure a fair primary" and empowered county executive committees to hold new registrations of party members and to appoint assistant managers in precincts to hear complaints of challenged voters, the county executive committees to make final decisions as to persons denied participation in primaries. No person is to participate in a primary who is not "in accord with the principles of the party" as proclaimed by its state executive committee. Several other amendments were made with respect to the administration of Mississippi primaries.

Arkansas repealed the provision, adopted in 1945, for a separate primary for Federal offices, required primary candidates to file pledges to abide by the result of the primary and compelled candidates for convention delegate and county committee member to pay ballot fees before their names can go on the primary ballot. Some changes as to primary contest procedures were also made by Arkansas. The Governor of Georgia vetoed a bill which would have repealed all primary laws. Alabama amended the primary law with respect to the time of holding nominating mass meetings, the eligibility of parties to have their tickets on the general election ballot, unopposed primary candidates, and contested primary election cases. Florida provided special primaries for elections to fill vacancies. The run-off primary was made mandatory for county offices in Texas.

NOMINATION PROCEDURES

Innumerable amendments affecting primaries and nominating procedures were enacted in many states. Michigan, Ohio, and Wisconsin made a number of changes. Arizona clarified and altered provisions for the recognition of new parties. Connecticut created a new condition respecting the inclusion of party candidates on the general election ballot. Candidates for certain judgeships in Illinois may be nominated by more than one party and independently as well. Massachusetts forbade the name of a candidate for delegate or alternate to a national convention to appear more than once on a presidential primary ballot. Independent candidates registered as party members within the year before filing were barred in Nevada. Arrangements for the filing and withdrawal of candidates and for the filling of vacancies were altered in a dozen states. Massachusetts, New Hampshire, and New York required formal candidate acceptance of nominations, New Hampshire also, forbidding "straw candidates." New York forbade nomination of nonparty members unless approved by the proper party committee. South Dakota denied a governor nomination to a third successive term. California consolidated her general and presidential primaries. New York moved the convention and primary dates from September to August for 1947; Idaho the primary from June to August. A double stub for primary ballots was provided by Colorado, and North Dakota abandoned the consolidated primary ballot.

PARTY ORGANIZATION

Three changes were made in party organization in Oregon—the elimination of elected county representatives on the state executive committees, repeal of the law governing the filling of vacancies on national committees, and the authorization of congressional district committees to make nominations for special congressional elections. Arkansas added township representatives in county conventions.

Payment by the State Treasury of the actual traveling expenses up to $200 of delegates to national conventions who actually attend was provided by North Dakota.

CONDUCT OF ELECTIONS

Colorado, Delaware, Minnesota, New Jersey, and Wisconsin enacted miscellaneous amendments of a detailed or clarifying nature with reference to the administration of general elections. Local election arrangements were altered in various respects in Arkansas, Delaware, Georgia, Iowa, Michigan, Montana, New Mexico, Oregon, Texas, Wisconsin, and Virginia. Nebraska restored election laws to the status existing prior to the enactment of the Soldiers Voting Law. Kansas created a commissioner of elections, appointive by the governor, for all counties having registration, upon whom was conferred various powers of city, county, and township election officials. County auditors in Washington were made supervisors of all general elections. Election commissioners were created for two populous counties in Nebraska. New Hampshire authorized the Attorney General to appoint a challenger at any polling place. Precinct foremen were created in Nevada, who will be required to attend county schools to be instructed in the election law. Separate precinct canvassing boards were set up in California. New York, Pennsylvania, and Wyoming altered provisions affecting election judges and challengers. Increases in the compensation of election officials were provided in nine states. Provisions relating to voting precincts and polling places were changed in Alabama, Connecticut, and Massachusetts. Connecticut, North Carolina, and Tennessee legislated with respect to special elections.

Voting qualifications or residence requirements were amended as to details in Connecticut, New Mexico, New York, South Dakota, and Wisconsin. A dozen states made changes in their ballot laws with respect to printing, custody, form, or marking. Most notable were: new constitutional provision in Colorado for an absolutely secret ballot; establishment in effect of the short ballot by the new Constitution of New Jersey; adoption of the presidential short ballot in Utah; elimination of the party circle in Washington; authorization of the check-mark as an alternate method of marking ballots in Maine and New Jersey; insuring a party of the exclusive use of its name on the ballot in Wisconsin; and the provision for separate referendum ballots in Montana for all questions involving state finance. A new voting machine law authorizing the use of voting machines in all cities and counties was passed in Colorado. Voting machine provisions were amended as to details in eight states. Proportional representation was discontinued in New York City, Long Beach, N. Y., and Boulder, Col. Polling hours or procedures were altered in five states. Provisions relating to vote counting and canvassing, recounts, or election contests were amended in six states.

REGISTRATION AND ABSENT VOTING

Many revisions of the details of registration administration and procedure having to do with periods of registration, closing registration before elections, records, revision of records, change of registration, cancellation, party enrollment, appeals, fraudulent registration, and/or increased compensation of registration officials were enacted in 20 states, few of which were of much importance. Delaware amended her constitution to authorize the General Assembly to enact uniform laws for absentee registration for those in the armed forces and merchant marine and for those absent from the state because of incapacitation resulting from such service. Colorado centralized registration administration in the county clerks and in an election commission for the City and County of Denver and provided for cancellation of a voter's party registration after failure to vote in a general election.

Arizona, Iowa, North Dakota, and Washington repealed their wartime absent voting laws. Ohio re-enacted her absent voters law of 1945 for those serving in the armed forces, which was to have expired Dec. 31, 1947, with a number of changes as to details. New provisions prescribing qualifications and procedure for casting absentee ballots by members of the armed forces were passed in Oklahoma. New York substituted for the State War Ballot Commission a Division for Servicemen's Voting in the office of the Secretary of State. The new agency is to be headed by two directors (bipartisan) appointed by the Secretary of State upon nomination by the majority and minority leaders of the legislature. Arrangements for servicemen's absent registration and voting remain unchanged except for slight alterations in procedure and the moving of convention and primary dates previously noted. New Jersey enacted a temporary military service voting law applicable only to the primary and constitutional convention elections of 1947.

New York extended the absent voting privilege to voting in primaries, to members of the family of a voter necessarily absent, to veterans absent for medical treatment, to Federal employees or members of the armed services, to students, and to school superintendents and teachers employed outside the county of their residence. California, Colorado, Delaware, Maine, Michigan, and Oregon made changes in the details of absent voting procedure; Colorado provided for separate polling places and counts for absentee ballots; and Nevada forbade the sending of campaign literature and all other enclosures with absentee ballots.

CORRUPT PRACTICES

Six states legislated with respect to corrupt practices. New Hampshire increased the fine against registration supervisors for failure to strike out the name of an unqualified voter or to insert the name of a qualified voter, or for registering an unqualified voter from $50 to $300. Fraudulent voting was made subject to a fine of from $50 to $500, and all election offenses for which no specific penalties are assessed by law were made subject to a maximum fine of $100. New Mexico made bribery in connection with voting a felony. The location of registration and polling places where liquor is dispensed was prohibited by New York. Impersonating a registration agent was made a felony in Pennsylvania. Tennessee forbade the removal of a ballot box from the polling place before the completion of the count and the cancellation of all vacant spaces on the poll books and talley sheets, the latter as a precaution against the addition of any names. Washington elaborated prohibition on electioneering near the polls on election day and repealed the section forbidding newspapers to receive consideration for election support.

COUNTY GOVERNMENT

By Mary Capen Davis
Assistant Professor, New Jersey College for Women

OPPOSITE TENDENCIES IN THE ROLE OF COUNTIES

If one endeavors to assess the role of counties in the governmental pattern of the United States, two opposite tendencies appear which have become visible in past years. In certain states the county has emerged as a genuine agency of the locality, performing vital functions and representing a growing community sense. As the "Report of the Wisconsin Joint Interim Committee to Study County Government" (p. 7) expresses it: "Counties had been looked upon as arms of the state government designed to carry out state functions. Today counties are far more than that, they are important units of local government."

On the other hand, in some areas the county has become an obsolete unit which complicates the effective performance of public services. Politics in the bad sense and the development of population and resources in directions unrelated to county lines may account for such a decline. Occupying a middle ground between these extremes one finds another situation in which counties are required to supply an increasing number of services but, because they lack sufficient resources of money and trained personnel, are forced into greater reliance on state and Federal aid and acceptance of the controls which accompany such aid. The problem of county government is the problem of all government. It is the question how to supply needed services efficiently while maintaining a genuine responsibility to the electorate. The answering of this question is complicated for each of the three levels of government in our system by the existence of the other two. It is further complicated by functional divisions within each level. Although much remains to be done to improve our local government machinery, some encouragement can be derived from the fact that an increase in county functions has often been linked with general or specific reorganization.

CONSTITUTIONAL CHANGES

The principal constitutional change in county government for 1947 occurred in New Jersey where a new state constitution was adopted Nov. 4. A considerable liberalization of county powers is granted by the new constitution. Article 4, Section 7, paragraph 10, allows the legislature to pass special, private, or local laws affecting the internal affairs of a county upon petition of the county's governing board, these laws to become operative only upon a vote of the governing body or of the legally qualified voters. Paragraph 11 of the same article and section specifically requires that constitutional provisions and laws concerning counties shall be liberally construed to cover all necessary and implied powers. A general reorganization of the judiciary gives to each county a single court in place of the five county courts previously in existence. Finally, counties are authorized to clear, plan, and develop blighted areas within their boundaries.

CONTINUATION AND DEVELOPMENT OF COUNTY FUNCTIONS

There was the usual quantity of permissive legislation giving counties power to continue existing services. California and Maryland passed laws clarifying the general organization and powers of their counties. The California act covers all aspects of county government and consolidates and revises the existing law on the subject. It presents a picture of a vigorous, responsible government, enjoying considerable powers and performing many important functions, constructively related to the state but neither dependent on it nor hamstrung by it. California counties certainly illustrate the first tendency described at the beginning.

The Maryland law gives to county commissions, not already possessed of such powers, rights to acquire or sell property for public purposes, grant franchises, provide for appointment and removal of county officers, fix salaries, establish merit pension, and retirement systems, and exercise public health functions.

Several states made specific additions to the functions of some or all of their counties. Most of these provide for creation of special districts, departments, or commissions. Illinois authorized county boards to create county weed-control departments. In Utah, the county commissioners were empowered to establish special improvement districts outside the incorporated areas of cities and towns for the development of water and sewer systems. Colorado allowed its counties to set up county health departments and recreation districts. A special California law permits county boards of supervisors to declare the county an air pollution control district and appoint an air pollution control officer. Second class counties in Pennsylvania may create a County Transit and Traffic Commission to investigate transit and traffic conditions, and consider coordination of existing services and safety measures.

The New York legislature passed an act enabling the board of supervisors of counties, not possessing a general health district, to appoint public officers, such as nurses, doctors, sanitary inspectors, etc. These public health employees are to work under the direction of a county public health committee which is likewise appointed by the board of supervisors. New York has also constituted each county in the state, except those including the cities of New York, Oswego, Poughkeepsie, Auburn, and Newburgh, a county public welfare district. The area in each of these excepted counties outside the city is to be a public welfare district also.

Iowa has established county school systems to operate under the direction of the county board of education and has authorized counties to set up county library districts including one or more counties to provide free public library service for rural inhabitants of counties. In Oregon, counties have been authorized to create county planning commissions to prepare a land development pattern, land-use regulations, and subdivision control for unincorporated areas. Ohio has also allowed its counties and townships to adopt zoning ordinances for unincorporate territory and appoint a zoning commission.

FINANCIAL PRACTICES

A few states instituted changes designed to improve the tax assessment or budgetary procedures of counties. In Iowa, the county auditor was made county assessor with power to appoint qualified deputy assessors from a list certified by the state tax commission. Iowa also required establishment of a board of review to review the county assessments. Kansas provided that counties with a county assessor may adopt the provisions of a state law setting up procedures for securing a complete listing and an equitable, uniform, and fair assessment of all real estate and improvements along the lines recommended by the Kansas legislative council in 1940.

A Tennessee law was passed allowing city and county legislative bodies to make contracts with corporations, firms, or individuals in order to achieve more efficient and equitable tax assessments. The state also requires county revenue commissioners to publish an annual account of their receipts and expenditures. New Hampshire has revised county budgetary procedures requiring the county commissioners to give advance notice of their budget to the legislative body of the county which is then to hold a public hearing on it. Provision is also made for review of county expenditures in terms of the budget after its adoption, and appropriations by the legislative body are required to be itemized in detail and recorded.

COUNTY MANAGER

County manager plans have gone into effect in counties in three states. Anne Arundel County, Maryland was authorized to appoint a county business manager to be chosen on a merit basis and to act as chief executive of the county. He will have power of appointment and removal except over the police and the liquor licensing commission, will control all financial functions, and have supervision of roads and public works. The Tennessee legislature passed an act providing for the election of county commissions to have all legislative powers, except establishment of the annual tax rate, and to appoint a county manager. Fulton County, Georgia voted for the manager form of government in June 1946, and the 1947 legislature implemented the county's decision by passage of a county manager bill. The Montgomery County, Maryland charter commission, which was created as a result of popular vote in 1946, has proposed a new county manager charter to be voted on in 1948.

MERIT AND RETIREMENT SYSTEMS

The slow development of measures designed to improve the quality of county personnel continued in 1947. California's new county government act allows counties to adopt a limited civil service system, if accepted by a majority of the qualified electors in the county, and creates a retirement system covering all county officers. Virginia authorized Fairfax County to establish a system of pensions and retirement allowances for all officers and employees, extended the retirement system in Arlington County, and made mandatory a pension system for firemen and policemen in Norfolk County. In New Jersey, counties and municipalities are allowed to put the question of adopting a civil service system on the ballots of general or municipal elections. Illinois has established a system of competitive examinations for employment and promotion in county service. The Colorado State Department of Public Welfare has been authorized to set up a merit system for the employees of county departments of public welfare. Utah has instituted a retirement system for all appointive officers and employees of counties.

CONSOLIDATION AND COOPERATION

City-county consolidation or joint operation of services by cities and counties or several counties offer possible solutions to the problem of dispersal and duplication of functions so visible in local government. One instance of city-county consolidation and several of inter-unit cooperation are to be found in the record for 1947.

In Louisiana, a charter providing for consolidation of the city of Baton Rouge and the parish of East Baton Rouge was accepted by the voters. A Wisconsin act authorized several counties or a city and a county to establish a common department of health, and West Virgina authorized its counties to cooperate with each other or with municipalities to employ health officers or maintain health equipment.

California's revised county government law permits counties to lease equipment, do work, or supply goods for any district or municipal corporation within the county if the district or municipal corporation pays for same. A Kansas law allows two or more counties to employ one social welfare director, while the Indiana legislature authorized joint city-county planning, multi-county flood control districts, and city-county health units.

INTERLEVEL RELATIONS

Financial aid, with or without control over standards of operation, remains the chief item in the category of relations between counties and states or counties and the Federal Government. Here, California proves the rule and provides an exception. It granted state aid to counties establishing and maintaining a tuberculosis ward or hospital conforming to the regulations of and approval by the State Department of Public Health, granted aid to approved county health departments, and established a conference of local health officers to assist the State Department of Public Health in formulating standards of organization and operation of local health departments and qualifications for their personnel. The State Department of Public Health was also authorized to set up field training centers in the local departments.

California likewise created a State Communications Advisory Board, composed of state, city, and county representatives, to coordinate the operation and use of publicly owned and operated communications facilities between local, state, and Federal agencies. Finally, California authorized any county, city, state, or Federal agency to exercise jointly any powers common to the several units. New York provided state aid for counties establishing a public hospital or clinic or for the expenses of any other county public health enterprise.

The formula of aid plus control was used in Massachusetts, which requires county airport commissions having an offer of Federal funds to designate the Massachusetts Aeronautics Commission as its agent to receive the funds and further requires any contracts for airports to be approved by the state commission. Where Massachusetts counties have appropriated 50 per cent of the cost of an airport, the state will reimburse them to an amount not exceeding 25 per cent of the cost. Kansas has authorized its localities to accept Federal aid and make contracts with Federal agencies for the operation of airports, and Utah counties are permitted to enter into contracts with the Federal Government for the construction of flood control projects within the counties.

ASSISTANCE TO VETERANS

Some provisions for service to veterans were made by counties in 1947. Wisconsin created in each county a county Housing Authority to provide for the construction and improvement of veterans' housing projects. All veterans' housing activities in the state are to be coordinated by a Wisconsin Veterans' Housing Authority which will cooperate with the Federal Government and assist the local housing authorities. California counties are authorized to use funds and personnel to carry out the Federal housing program and to make agreements relative to housing with the Federal Government and the state. Local agencies may apply for state aid for 90 per cent of the non-federal cost of their housing programs.

In Iowa, certain counties were authorized to appropriate money to maintain information services for veterans and in Arkansas the county Quorum Courts were permitted to make appropriations for offices for the benefit of or services to veterans. Massachusetts provided for back vacation pay and reinstatement in their former positions for county employees returning from the armed services.

UNSUCCESSFUL EFFORTS AT REFORM

If considerable progress was made in the reorganization of county government during the year, there is still a dark side to the picture. The Massachusetts legislature rejected an act making the civil service law applicable to county employees. An Arizona law to allow creation of county planning and zoning commissions, which has been proposed several times, was again defeated. Connecticut failed to pass an act creating a Commission on County Reform to make a much needed study of county government in the state. Alabama rejected an act creating a County Board of Administration as an alternative system of county government which could be adopted by any county on a vote of the qualified voters.

Wisconsin is still struggling unsuccessfully to reform its county government. The 1947 legislature rejected bills to abolish the fee system for county elective officers, to provide a county finance officer, to require centralized purchasing by a county purchasing agent and to require consolidations of all county welfare activities under one county welfare department. Three joint resolutions dealing with county government were also defeated. One would have amended the Wisconsin constitution to provide optional forms of county government. One would have proposed another constitutional amendment relating to the powers of county boards and the uniformity of county government. The third would have created a joint interim committee to study, revise, and codify all laws relating to county government in the state. Thus legislative as well as constitutional reform of Wisconsin counties has been at least temporarily blocked.

PERIODICAL PUBLICATIONS

Book of the States, The
Council of State Governments, 1313 E. 60th St., Chicago.

National Municipal Review
299 Broadway, New York City.

Public Works
310 East 45th Street, New York City.

State Government
Council of State Governments, 1313 East 60th St., Chicago.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Legislators Assn., 1313 E. 60th St., Chicago.
Civil Service Assembly, 1313 E. 60th St., Chicago.
Civil Service Forum, 150 Nassau St., New York City.
Council of State Governments, 1313 E. 60th St., Chicago.
Institute of Local and State Government, 3437 Woodland Ave., Philadelphia.
National Assn. for Constitutional Government, 716 Colorado Bldg., Washington, D. C.
National Civil Service League, 67 W. 44th Street, New York City.
National Municipal League, 299 Broadway, New York City.

DIVISION V

MUNICIPAL GOVERNMENT

NEW YORK CITY AFFAIRS

By Theodore H. Skinner
Professor, New York University

MAYOR O'DWYER'S SECOND YEAR

Even as the occupant of the White House was finding that a year of ostensible peace was filled with problems clamoring for solution, so the occupant, for his second year, of Gracie Mansion discovered that the life of the Mayor of the world's largest city is not an easy one. At the very beginning of the year, a prison break from the ancient city prison (Raymond Street) in the Borough of Brooklyn served to focus critical attention on City Hall. The closing days of December brought the Mayor back from a short vacation to find the city streets buried under the heaviest snowfall in history. And the intervening months presented one serious problem after another.

The proximity of a Presidential election in 1948 added political overtones to the serious economic and administrative difficulties confronting the municipal authorities. Investigation of city departments, both by the state and by the Mayor's own Commissioner of Investigation, became the order of the day, numerous shifts in administrative personnel were made, and the "five cent fare" at long last ceased to be regarded as a fixture in municipal fiscal policy.

The prison break resulted in the immediate appointment of a new Commissioner of Correction, who proceeded to institute some much needed administrative reforms. Inadequacies in department personnel were revealed, and corrected in part by the use of city policemen assigned to duty with the Department. The episode served to indicate the necessity of a further allocation of funds to correction work, or the assumption of a large portion of its custodial duties by the state.

FINANCIAL PROBLEMS

The need for additional funds for the work of the Department of Correction was but one item in the city's increasingly difficult financial plight. Unlike the Federal Government, with its unlimited taxing power and access to all the resources of the nation, or the state which also has comparative freedom in finding a solution to its fiscal problems, the taxing power of the City of New York is severely circumscribed. When he took office at the beginning of 1946, the Mayor made a careful survey of the city's fiscal situation and discovered a prospective deficit for the ensuing year of approximately $120,000,000. Although this was taken care of by gaining legislative consent to certain additions to the city's taxing power, the rising cost of living forced numerous increases in the salary scale of the city's employees. As a result of this increase and a rise in the operating deficit of the city subway system, the Mayor was faced with a prospective deficit in the next fiscal year of $80,000,000 to $100,000,000.

Accordingly, the Mayor announced that he was requesting the Governor to agree to an increase in the contribution made to the city from the state treasury, $102,000,000 being the amount in question. He also asked for additional funds for low-cost housing, this being one of the major problems of the metropolis. As the state had been able to build up a surplus over the war years of some $600,000,000, much of which had been contributed by residents of the city, the Mayor held that his request was highly reasonable, particularly as the proportion of state revenues being returned to local communities was considerably less than during the administration of Governor Lehman. Governor Dewey, backed by a substantial Republican majority in both houses of the Legislature, was not receptive to the Mayor's request. His refusal was grounded on two points: that the city would receive better than half of all state revenues returned to the local communities ($191,000,000) and that it was destructive of local responsibility for the state to assume a larger share of municipal expense, particularly where the deficit in question was in part due to an antiquated policy as to subway financing.

The political aspects of the controversy extended beyond the state's borders, owing to the position of Governor Dewey as a potential candidate for the Presidency. The Governor would be depicted by his supporters as a defender of sound fiscal policies, while the Democrats would, presumably, point to his utter disregard of the well-being of the largest city in the country. After a bitter two months battle by his representatives in Albany, headed by Comptroller Lazarus Joseph, the Mayor had a conference with the Governor, and announced a compromise. The Governor agreed to press the Legislature for an additional bond issue for public housing, of which $120,000,000 would be allocated to the city, while the Mayor dropped his battle for additional state funds, agreeing that a 27-point increase in the real estate tax levy would enable him to balance his budget. Both the real estate interest in the city and the Mayor's supporters at Albany were dismayed by this sudden decision.

Despite this arrangement, the city's financial position became increasingly precarious as the year drew to a close. In December, after prolonged hearing on the problems of subway financing, the Mayor announced that the ensuing year would see another increase of $161,000,000 over the 1947 budget. He hoped to meet this rise by obtaining $25,000,000 in new taxes already authorized, $51,000,000 by an increase in the subway fare from five to eight cents, and $84,000,000 in increased state aid. In addition, he proposed an increase in the constitutional limit on city borrowing from 10 to 12½ per cent of valuation and on real estate taxes from 2 to 2½ per cent of assessed valuation. As the year came to a close, the successful attainment of the entire program was highly doubtful.

THE ANNUAL BATTLE OF THE BUDGET

Although the various interest groups of the city had been forewarned by the Mayor's discussion of the city's fiscal difficulties and the resultant attempts to obtain additional state aid, the annual budget message to the Board of Estimate and City Council was a shock. A vigorous pruning of departmental estimates and refusal to yield to the demands of various groups for additional social services nevertheless failed to keep the proposed estimates from being the largest in the city's history. The total requested amounted to $1,029,120,314, with the exception of the Federal Government, the first and only $1,000,000,000 budget in American fiscal history. This represented an increase over the record budget of the previous year of $135,000,000.

Of this amount debt service and education each accounted for 19 per cent. Eight per cent was allocated to health and hospitals, police and fire protection accounted for 12 per cent, and 4 per cent went to sanitation. Funds allocated to debt service showed an increase of $15,500,000, while education was allotted an additional $23,500,000. Much of the increase was due to cost of living wage adjustments for transit workers and other city employees, which had been long overdue, together with salary raises for teachers and nurses, the resumption of the three-platoon system in the fire department, and the expansion of the police department personnel to its full quota. Because of his failure to obtain any further contributions from the state, the Mayor estimated that the real estate tax levy would amount to $2.95, a jump of 25 points over that of the previous year.

As was to be expected a wave of tremendous protest ensued. As had been the case in past years, the budget was satisfactory to no one. Employee representatives declared that, while the increases were welcome, the continuing rise in living costs made them still inadequate. Councilman Quill and other spokesmen for the transit workers indicated that a new demand for a wage increase would eventuate shortly. Those interested in education demanded more new schools and an increase in the teaching personnel. In the forefront of the opposition, as in previous years, was the Citizens' Budget Commission, supported by the New York Real Estate Board and the Commerce and Industry Association. The prospect of a possible $5 tax on trucks and $10 on private cars brought the Automobile Association of America into the battle.

Opposition to the continuation of the five-cent fare on the subways, spearheaded by the Citizens' Transit Commission, intensified by another rise in the system's operating deficit, reached new heights and gained new converts from other organizations. As in years past, the Mayor and his associates remained firm in their support of the traditional fare, although the Mayor indicated that he would be willing to submit the matter to a popular referendum at a special election to be held some time in the future. However, the Mayor suggested that the Citizens' Budget Commission undertake a survey to determine whether savings might be made by merging the Police, Fire, and Correction Departments, and the Housing and Building Department with that of Public Works. He also offered the Commission full access to all phases of the city administration for purposes of surveying operations and ascertaining methods of reducing the cost of essential functions. This the Commission agreed to undertake, but the results, if any, could not be reflected in the finances of the current year.

In the two preceding years the Board of Estimate had departed from its time honored custom of merely rubber-stamping the executive budget. In 1945, Comptroller McGoldrick broke with the Mayor in yielding to public pressure. In 1946, the Mayor himself instigated sizable changes. In 1947, while providing spokesman for the various protestants with ample opportunity to present their case, the Board of Estimate made only minor changes in the budget, the total amounting to $2,000,000. In all three years, it may be noted, the changes resulted in an increase in the Mayor's original figures. The required hearings before the City Council brought out no new facts or figures, and that body gave its approval to the final sum set by the Board of Estimate.

During the course of the hearings on the budget, the Mayor announced that, because of errors in the figures submitted to him, the original estimate of the coming tax rate on real estate was too high, and the tax rate as finally enacted by the City Council proved this to be correct. The basic levy for the 1947-48 fiscal year is $2.89 on each $100 of value. Local improvement assessments in the various boroughs brought the rate to the following figure:

Queens	3.06	Increase	0.20
Brooklyn	3.01	"	0.19
Manhattan	3.01	"	0.15
Bronx	2.98	"	0.19
Richmond	2.98	"	0.19

THE TRANSIT PROBLEM

As in the case of his predecessor, Mayor O'Dwyer has been plagued by problems arising from the operations of the city-owned subway system. On the one hand are the financial questions arising from the fact that the operating revenues of the system are not sufficient to make it self supporting, the resulting deficits having to be met from the city's tax revenues. On the other hand are the increasing complexities of management-employee relations, aggravated by the demand of the Transit Workers' Union, headed by City Councilman Quill, to be accepted as the sole representative of the workers and to engage in collective bargaining with the operating agency of the city, the Board of Transportation. Periodically for the past several years, the Union has coupled demands for wage increases and recognition for bargaining purposes with threats to tie up the lines by a strike.

The position of the Mayor in this case was a difficult one. As chief executive of the city, he is directly concerned with any drastic disruption of the normal life of the community which would be involved in any cessation of subway service. However, he has no direct control over such matters, the Board of Transportation being a semi-autonomous body, its three members being appointed by the Mayor for staggered terms, but not subject to removal at his pleasure. General Gross, the president of the Board, was appointed by Mayor La Guardia in 1945. As is the case with many army officers, he is averse to adopting the collective bargaining techniques employed by labor and management in private industry. In this attitude, he was joined by his colleagues, his attitude being solidified by LaGuardia's repeated insistence that city employees had no right to strike against the government. Further complicating matters was the fact that the T.W.U. is not the only organization among the transit workers, and the other unions bitterly resent its demand to be accorded a position as sole representative of all the workers.

Since the beginning of his term, Mayor O'Dwyer has endeavored to arrive at some solution to this problem. The term of one member of the Board expiring early in 1947, the Mayor filled the vacancy by appointing William H. Davis, the well known labor expert and former Chairman of the War Labor Board, to the post. After a thorough canvass of the problem, the new member proposed, with the benediction of the Mayor, that the Board agree to deal with all employee organizations on the basis of their numerical strength, as determined by elections. This proposal was rejected by the remainder of the Board, and when the Mayor sought to intervene, General Gross tartly advised him to stop handicapping the agency in its efforts to operate the lines safely and efficiently. The Mayor then disclaimed all future responsibility for the operation of the system, but stated he would hold the Board strictly accountable for "any results which adversely affect the safety and welfare of the people of the city."

Shortly thereafter, hostilities broke out anew between the Board and the T.W.U. In order to save some million dollars, week-end runs were cut. The T.W.U. claimed that the new schedule put some of the workers on split shifts, part in the morning, then time off, and the rest in the evening. When this protest had no result, the union demanded the dismissal of General Gross and embarked upon a meticulous obedience to all operating regulations, which resulted in a slowdown, with Quill announcing that this might become a "stoppage," with the workers refusing to operate trains under "unsafe" conditions. Bitterness increased when disciplinary action was taken against four workers who were also prominent in the union, but operations were shortly restored to normal.

At this point, the Mayor again stepped into the picture. Reversing the stand he had taken some four months previous, he announced that he was considering an increase in the five-cent fare, subject to the voter's approval in November, and appointed a three-man committee, consisting of his assistant, William Reid, Budget Director Patterson, and License Commissioner Fielding, with instructions to consider what fare would be necessary to meet operating expenses, including potential wage increases. After a thorough canvass of the situation, the committee reported that an eight-cent fare would be required.

Because of the large number of voters who use the subways daily, it is extremely dubious if a fare increase would be approved in a referendum. To increase it without such vote could be dangerous politically. To meet this difficulty, by coupling the increase with provision for other demanded services not at present available, the Mayor worked out a combination program which he announced he would present as a "package" to the Legislature at the beginning of its session. As indicated above this would include: (1) Exemption from the constitutional debt limit of the funds necessary to construct a Second Avenue subway and unify the trackage of the entire system; (2) an increase in the permissible real estate tax levy from 2 to 2½ per cent and a similar increase in the debt limit, which would permit expenditures for the improvement of other municipal services; and (3) authorization to the Board of Transportation to increase the subway fare without referendum to meet operating deficits.

THE QUILL OUSTER MATTER

One governmental matter growing out of the subway dilemma was settled during the year. Both in 1946 and in 1947 the belligerent attitude of Councilman Quill as head of the T.W.U. and his threats to call a "strike against the government" provoked considerable censure. Demands were made that he be ousted from the Council, but that body took no such action. Late in 1946, a taxpayer's suit was instigated to declare his seat vacant on the ground that he had violated the City Charter provision forbidding any member of the Council from receiving remuneration for services with any concern doing business with the city. It was claimed that this provision, designed to eliminate patronage in city contracts, would also apply to a representative of a union of city employees. This question was resolved in 1947, the court dismissing the suit.

LABOR RELATIONS IN PRIVATE INDUSTRY

In a large metropolitan community with its manifold activities and thousands of business concerns, disputes between management and labor frequently occur. With regard to most of these, the city administration has no concern, but some industries are of such vital importance that a disruption of normal business activity can not be permitted to continue long because of the effect on the city's entire business structure, or the health and convenience of its citizens. The year 1947 was not as prolific in serious strikes as was 1946, but the Mayor's intervention was required on a number of occasions. To take a typical month, September found serious disruption in four areas of the city's business, air lines, food stores, restaurants, railway express. The bulk of the city's $2,000,000,000-garment industry ships its product by railway express. Consequently a strike by 4,000 drivers, members of the A.F.L. Teamsters' Union, with picket lines which private truck-drivers refused to cross, produced a serious crisis. The demand here was for a 40-hour week and 15-cent wage increase, with the company agreeing only to the latter.

During the same month, a threatened walkout by the employees of the Safeway grocery chain caused the management to close its stores to avoid possible spoilage of perishable food; the Childs chain of restaurants, serving 50,000 patrons per day, was struck; and a walk-out of airline pilots grounded all American Overseas Airlines planes for a week. In all cases, the city intervened and was able to bring about a settlement and the resumption of normal business.

In the latter part of 1946 was organized, in the executive office, a special Labor Relations Division under the direction of an experienced mediator, Edward C. McGuire. The main function of the agency was to apprehend the possibility of labor-management disputes before they might reach the crisis or strike stage, and by furthering negotiations between the disputants scotch the strike before its inception. The Division continued to function effectively throughout 1947, intervening successfully in some 60 disputes. Its first and only failure occurred when the grooms and exercise boys at the Jamaica race track struck, thus endangering the city's revenues from the tax on pari-mutuel betting within the city's limits.

Although private contractors were involved, two strikes directly concerned the city. Construction at the new Idlewild airport were held up for many months by a jurisdictional dispute, preventing the installation of the necessary electrical equipment in the control tower. The Mayor was able to work out a compromise settlement whereby the two unions agreed to share the work. Similarly a strike of the "sandhogs" employed in pushing through the new vehicular tunnel under the East River to Brooklyn threatened to tie up that project. Here again the Mayor was able to negotiate a settlement personally.

POLICE AND FIRE DEPARTMENTS

The transfer of many members of the Fire Department during the war entailed additional duties for those remaining, as the three-platoon system had to be abandoned during the emergency. The year 1947 found the system once more in working operation and the Department functioning with the desired efficiency.

Police Commissioner Wallender, an appointee of the preceding administration, continued to head the department and, at the close of the year, was able to announce that his once depleted ranks were again filled to the quota prescribed by law. However, the needs of the post-war era are so great that the authorized force can not effectively police the city and cope with traffic congestion. Accordingly, the Commissioner asked for authorization of 2,000 men additional.

In August, a bookmaker complained to Bronx District Attorney Foley that the police had demanded protection money from him. Grand jury inquiries immediately ensued in both the Bronx and Queens. No indictments of any police officers were handed up, but instead it was urged that the state should move to legalize gambling as the only way to meet the problem. Commissioner Wallender announced that every member of the force, from rookie to the Deputy Commissioner, would be held personally responsible for stamping out the "bookies," shifted a large number of officers, and demoted four inspectors to the rank of captain. As on previous occasions, the drive resulted in but few arrests, and none of important operators. In addition to the shakeup mentioned, the Commissioner continued his previous policy of forcing out the older men in the department who were no longer physically fitted for their duties, and replacing them with younger men.

AIR TRANSPORT

In 1946, the financial plight of the city presented serious obstacles to the rehabilitation of LaGuardia Field, and to the completion of the new municipal airport at Idlewild, on the south shore of Long Island. At the instigation of Commissioner Moses, an independent Airport Authority was set up, designed to operate the airports on a self-liquidating basis, thus placing all bonded indebtedness outside the city's debt limit. The new agency continued to be plagued with difficulties, whereupon the Mayor asked the New York Port Authority to submit plans for the future management and financing of the city's air facilities for comparison with those of the Airport Authority. Of the two proposals, the Mayor found that of the well established Port Authority the more acceptable. Accordingly, the airfields in question were turned over to the Port

Authority on a long-term lease, due provision being made for payments to the city in the way of rental, and recapture at the expiration of the lease. The Authority immediately began the rebuilding of LaGuardia Field, as well as the continuation of operations at Idlewild, but it will be some time before the air transport needs of the area can be properly met.

CITY PLANNING AND ALLIED PROBLEMS

As the amendment to the zoning laws of 1946 had been set aside by a decision of the Court of Appeals, the major activity of the City Planning Commission at the start of 1947 was the formulation of a substitute. Unfortunately the Commission was handicapped by a lack of clarity in the court decision and consequently felt unable to make the provisions sufficiently drastic to meet the dangers of a speculative post-war building boom in the retail areas. As in preceding years, it failed again to undertake the constructive work involved in the formulation of a master plan for the city. During the year, the Chairman, E. A. Salmon, was subject to considerable criticism for engaging in private practice while still serving as a member of the Commission. Toward the end of the year, he resigned, and the Mayor appointed as his successor Housing and Buildings Commissioner Robert Wagner, Jr.

Each month during the year, the city's traffic congestion in midtown Manhattan increased. Despite drastic limitations on parking, applying to all streets from Fourteenth to Fifty-ninth, all avenues from Lexington to Ninth, and the area south of Fulton Street, traffic continued at a snail's pace. As usual, numerous suggestions looking to improvement were made, but they proved to be impractical or outside the city's fiscal potentialities. The ban on midtown parking resulted in sharp increases in parking charges by lots and garages. To meet this, the City Council required that all parking spaces must be licensed with no increase in fees permitted save after 30 days' notice to the Commissioner of Licenses.

HOUSING SHORTAGE

As in 1946, the housing shortage remained acute. Three public housing projects for the low-income groups were completely or nearly ready for occupancy at the close of the year, while a number of private projects, such as the Metropolitan Life Insurance Company's projects on the lower East Side, offered some relief to those of more adequate means. But those in the lower middle class, with incomes just above the subsidized public housing bracket, were being compelled to double up with friends or relatives. A number of civic groups urged that the city take advantage of state law authorizing municipal construction of non-profit, non-subsidized housing, but the Mayor's Coordinator of Public Works Construction, Parks Commissioner Robert Moses, was opposed to any type of "socialized" housing, as being a menace to private enterprise, and his view prevailed. In the preceding year, the city attempted to provide for the rehabilitation of the many sub-standard, boarded-up buildings scattered throughout the city, offering tax exemption on improvements necessary to make them habitable, but comparatively few real estate owners have taken advantage of such provisions.

DOCK AND AIRFIELD INVESTIGATION

Memories of the Seabury investigation were aroused by events during the middle of the year. Rumors of irregularities in some departments prompted the Mayor to order inquiries by his own Commissioner of Investigation, John W. Murtagh. The first inquiry centered on the Department of Marine and Aviation, in charge of all docks and airfields. It was brought out that a number of piers had been rented at nominal sums to non-shipping concerns which in turn made large profits from rentals to ship owners who could find no other space available. Deputy

Commissioner Brody was removed from office, and later indicted by a grand jury. Former Commissioner of Commerce Sanders was charged with wrongfully obtaining pier space for a concern in which he had an interest. A third investigation by Murtagh charged the city airport director with improper dealings with one of the oil companies doing business at the airports under his direction. He was brought up on charges and removed from office.

INVESTIGATION OF WELFARE ADMINISTRATION

The most extensive inquiry was that dealing with the operations of the Department of Welfare. This resulted from wide publicity given in the press to criticism of two phases of welfare expenditure. It was charged that indigent families were housed in hotels at the prevailing high rates and that city employees were receiving relief payments. Commissioner Murtagh gave the Welfare Department a clean bill of health as to these matters. At this point, the State Welfare Department entered the picture and launched its own inquiry, announcing it would inquire into all phases of welfare administration, and particularly into those dealing with the alleged special privileges of those employees who were Communists or "fellow travelers." At this point the Mayor requested the resignation of Commissioner Rhatigan, replacing him with License Commissioner Fielding. The latter announced that he had discovered a number of instances of inefficient administration which he had remedied. He offered full cooperation to the state department's investigation, which was still in progress at the close of the year.

POLITICAL AFFAIRS

The year 1947 was an "off year" so far as elections in the city were concerned, but two items of considerable importance occurred. Upon assuming the mayor's office, General O'Dwyer served notice that the administrative chief of the city would be a political leader as well. Noting the increasing criticism of the operation and control of the New York County Democratic organization, he directed his attention toward a change in the leadership, throwing his support to Frank J. Sampson in opposition to Edward V. Loughlin, and his chief supporters, Clarence Neal and Bert Stand. Enlisting the support of national party leaders and with the judicious use of his patronage power, he was eventually successful, and in March Leader Loughlin resigned in favor of Sampson.

DEFEAT OF PROPORTIONAL REPRESENTATION

Since the adoption of the new Charter, the City of New York has elected the members of the City Council by proportional representation. On two previous occasions, the Democratic organization attempted to persuade the voters to discard the system and return to the old single-member geographical district arrangement. In 1947, a third attempt was made, and this time it was successful. As the majority party, the Democratic organization would expect to benefit, as the old system was designed to provide minority representation. The new system—with Councilmen elected from state senatorial districts—may very probably, as in the past, provide a Council with only one non-Democratic member. The defeat of proportional representation was due to three factors in the main: (1) the absence of the independent or marginal voter, who appears only when major contests for public office are involved; (2) the vigorous support of the Republicans, whose victories in the local Congressional elections of 1946 gave them confidence that they were numerically on even terms with the Democrats in many districts; and (3) increasing public hostility to Communists and "fellow travelers." The municipal election of 1945 resulted in the presence of two Communists in the Council, and this was emphasized by campaigners and the majority of the press as a menace to the "American Way," P. R. being described as a Communist importation, the first stage in the subversion of the Constitution. The supporters of P. R. did not wage as vigorous a battle in its defense as had been expected. They hope, however, to raise the issue again and eliminate the single-member system before the next councilmanic convention.

MUNICIPAL POLITICAL TRENDS

By Alfred Willoughby

Executive Secretary, National Municipal League

CONTINUED REVIVAL OF CIVIC REFORM

A civic revival of unprecedented proportions, centering chiefly in communities which had been rising ever since the end of the Second World War, continued unabated during 1947. Its full political impact may still be uncertain, but it was marked by the sudden retirement, voluntary or involuntary, of a number of figures long familiar in local circles and, most notably, by a more mature and intelligent approach by citizens generally to municipal problems. Impatience with the old political ways of handling local services was general.

As *Life* magazine commented editorially (Oct. 6): "Some of this is due to veterans who came back with reinvigorated ideas of democracy; in Athens, Tennessee, they turned the rascals out at gun point. Some is due to the pressure for higher wages by city workers and teachers; with so many exacting eyes on them, city fathers find it harder to clip away a dishonest dollar. But the most significant thing about the present reform wave is that it has intelligent direction. Americans now appear to have sufficient political maturity to know what they want and how to get it."

TREND TO MANAGER PLAN

For the second successive year, adoptions of the council-manager form of government broke all previous records. The manager plan was adopted by 88 municipalities in the United States, and two more were added by Canada. This broke the record of 81 adoptions in 1946, the previous record being 48 in 1921, with an average of under 30 during the intervening years.

MUNICIPALITIES ADOPTING THE MANAGER PLAN IN 1947

Alabama—Bessemer.

California — Avalon, Woodland, Hayward, Petaluma, Auburn, Menlo Park.

Colorado — La Junta, Trinidad, Canon City, Golden.

Connecticut — Windsor, Farmington, Manchester, Milford.

Florida — Pompano, Dade City, Madison.

Georgia—Fulton County (Atlanta), Augusta, Dalton.

Illinois—Brookfield.

Iowa—Chariton.

Kansas—Colby, Russell.

Maine — Madison, Monmouth, Monson, Boothbay, Pittsfield, Bath, Calais, Bar Harbor.

Massachusetts — Saugus, Revere, Worcester, Medford, Quincy.

Michigan—Wayne, Sylvan Lake, Allegan.

Minnesota—Montevideo, Hopkins.

Missouri—University City, Charleston, Otterville, Hannibal, De Soto.

Nebraska—Lexington.

Nevada—Reno.

New Hampshire—Dover, Claremont, Keene, Portsmouth, Franklin.

North Carolina — Raleigh, New Bern, Whiteville, Kinston, Elizabeth City.

Oklahoma — Stigler, Anadarko, Lindsay, Pauls Valley.

Oregon—Coquille, Cottage Grove, Tillamook.

Pennsylvania—Oakmont.

Tennessee—McMinn County (Athens).

Texas—Midland, Sulphur Springs, Bonham, Carthage, Brownwood, Harlingen.

Utah—Vernal.

Vermont — Brandon, Montpelier, Bethel.

Virginia—Colonial Beach, South Norfolk, Pearisburg, Richmond.

Washington—Sunnyside.

West Virginia—Grafton, Oak Hill.

Wisconsin—Ashland, River Hills.

Canada — Rimouski and Rouyn, Quebec.

RICHMOND, VIRGINIA

With the overwhelming adoption of the council-manager plan in November, the capital city of the Old Dominion completed progress in a two-year "revolution" against the reigning political system which normally has taken other cities two generations to accomplish.

Richmond has had a distinctly old-style kind of government, with a two-house legislative body, numerous independent boards and commissions, and general diffusion and confusion. As in most communities, popular indifference was the chief bar to progress. For many years, no more than 3 per cent of the voters had bothered with municipal elections.

The awakening came under the leadership of the city's newspapers and nonpartisan civic organizations. In 1946, the people voted overwhelmingly to have a commission write a modern charter. The commission, composed of distinguished citizens, offered the council-manager plan. After a brilliantly led educational campaign, sponsored by the Richmond Citizens Association, the voters turned out in record numbers and approved the new charter by a vote of three to one. The only opposition came from incumbent politicians.

CHICAGO

Something new and distinctly unfamiliar happened to the nation's second largest city. Obviously out of patience with the long record of racketeering and the tender attitude of the political powers toward crime, the voters elected Martin H. Kennelly, self-made business success and long-time reformer, to succeed Edward J. Kelly as mayor, by a huge majority.

Kennelly, as head of the citizen-sponsored Chicago Crime Commission, had been a severe critic of the Kelly machine and had accepted the Democratic nomination for the mayoralty only with the public understanding that the organization would not stand in the way of bringing good government to Chicago.

In less than a year in office, Mayor Kennelly has taken politics out of the public schools. He has paid the city's bills and put it on a cash basis by establishing a $12,000,000 revolving fund. City purchasing is on a business, money-saving basis. A high-grade civil service commission was appointed, and progress is being made toward eliminating the spoils system. Streets and alleys are cleaner. Organized crime is having a tough time. Experts were employed and traffic accidents reduced. A start has been made on slum clearance and new housing. Unnecessary employees have been dropped.

So refreshing was this kind of performance for Chicago that the state Democratic organization asked Mayor Kennelly, at the end of the year, to be its candidate for governor of Illinois. Kennelly declined. He had promised that Chicago was going to have good government, and he was sticking to the job.

BOSTON

The phenomenon that is James Michael Curley kept the country in a state of amazement over the strange condition of politics in Boston, but, as usual, a great many Bostonians took the situation as a matter of course.

Sentenced to prison for mail fraud, Mayor Curley shouted at the Federal judge, "You are sentencing me to death," and he received the last rites of his church.

But while he served his time in the Federal House of Correction at Danbury, Connecticut, his health improved, and he declared he felt "ten years younger" when his six-to-eighteen-month sentence was commuted by President Truman after five months and he returned to the mayor's chair which had been kept warm for him by City Clerk John B. Hynes as acting mayor. Both received the customary $20,000 a year salary simultaneously. The Republican-controlled state government explained that it was wary of making a martyr of Democrat Curley.

During Curley's absence, a strong movement developed to permit the people of Boston to vote on the adoption of Plan E (council-manager plan with proportional representation) which has been spectacularly successful in neighboring Cambridge, but the legislature declined to permit submission of the question.

When Curley returned to the Boston city hall the morning after Thanksgiving, he was welcomed by a throng of 1,500 people shouting their joy at having "our Jim" back.

The Plan E for Boston Committee grimly put its leadership in the hands of young men and announced its determination to arouse the city with a real rebellion against the *status quo*. The chairman is Frank Ahearn, a 30-year-old attorney, Navy veteran, and Boston College honor graduate. Meanwhile, five more Massachusetts cities—Saugus, Medford, Quincy, Revere, and Worcester—adopted Plan E in 1947, thus heightening the pressure for good government in Boston. But the same senate which sat on Plan E for Boston in 1947 would sit in the senate chamber in 1948.

PHILADELPHIA

The Republican machine which had held on to Philadelphia since 1884 had its worst scare during the 1947 municipal election campaign when a political novice, Richardson Dilworth, Democratic candidate, aroused the apathetic city of brotherly love in a spectacular campaign.

Dilworth, 49-year-old socialite lawyer who fought with the Marines in both World Wars, conducted a slugging campaign during which he hired investigators to rake over the mud, which was plentiful, rounded up a corps of pretty girls to wear "Dilworth for Mayor" ribbons across their bosoms, spoke four or five times a night from the tops of sound trucks on street corners, and covered each of the city's 52 wards, most of them twice.

Despite the serious charges of graft and improper conduct in office, the old machine came through as usual, however, and the feeling of contentment settled back over the people.

DENVER

Aging Benjamin Stapleton, who reigned as Denver's mayor for two decades, was overwhelmed in the spring election by Quigg Newton, 35-year-old Navy veteran and lawyer, who pledged to rid the city hall of machine rule.

At the same time the people voted to call a convention to revise the city charter, which had been the basis of the 72-year-old Mayor's power. The charter convention's work, which constituted merely refinements of the old charter rather than a new approach, was rejected by the voters later in the year.

JERSEY CITY

One of the most startling political developments of the year was the sudden retirement of Frank Hague as mayor of Jersey City. But the retirement was more apparent than real, for he retained his post as Democratic leader of Hudson County and, without benefit of election, "crowned" his nephew, Frank Hague Eggers, to rule as mayor in his place.

It was generally believed, when he announced his retirement in June, that he had become fearful, after 30 years of dictatorship, during which he had brooked no opposition and had ruthlessly crushed any signs of it, that growing opposition might suddenly crush him as it had his ally in neighboring Hoboken, Mayor Bernard Mc-

Feely. The state had forced the use of voting machines on his domain. A modern state constitution was in preparation. Three successive governors whom he could not manage had been elected.

But close observers of New Jersey's political scene found it difficult to believe that, even at 71, Frank Hague would relinquish his power. Before the drafting of the new constitution was completed, his enemies compromised with him and softened provisions to which he objected rather than risk his opposition.

And before the year ended there were well substantiated reports that Hague had succeeded in taking under his wing the new "reform" administration which had unseated the McFeelys in Hoboken.

HOBOKEN, N. J.

Across the Hudson River from New York, Hoboken, a dreary one square mile of wharves, factories, warehouses, 300 bars and liquor stores, bleak tenements, and 50,000 people, had endured the dictatorial rule of Bernard "Barnacle" McFeely for more than 20 years. Virtually all his relatives were on the payroll. Edward, a brother, was police chief; Dennis, nephew, deputy chief; Tom, nephew, superintendent of schools, and so on through a long list representing a degree of nepotism unequaled in modern times.

McFeely, who also owned the company which collected the city's garbage on contract, never denied published reports that he had amassed a fortune of $3,000,000 although his salary had never exceeded $5,000.

A revolt begun by young policemen who claimed they were persecuted by the McFeely machine, joined by the League of Women Voters and other groups, overwhelmed the McFeely machine in the spring election. The "reform" commissioners retained the Consultant Service of the National Municipal League to make an administrative and financial survey which promptly disclosed that the city had at least 244 superfluous employees, a large share of them unqualified for the jobs they held. The report said Hoboken had paid enough in taxes to buy a high quality of service but that this money had been dissipated by the typical boss method of hiring many favored, unfit individuals.

YONKERS, N. Y.

James A. Sullivan, vice mayor of Yonkers, who had gained nation-wide notoriety during the war by sending, over his own name, to mothers of men killed in action a letter which was a copy of the classic one to Mrs. Bixby by Lincoln during the Civil War, was indicted on a charge that he had set up a bogus business to cover large scale bookmaking operations in the city-owned Labor Temple.

Sullivan, who had been a steadfast foe of the council-manager plan and the proportional representation method of voting which had brought considerable progress to Yonkers, resigned in the midst of an investigation which had revealed that he and his wife had banked huge sums of money while the bookmaking operation was in progress.

Meanwhile, Yonkers elected a majority of a fusion slate to the council and continued to improve its government.

SAN ANTONIO, TEXAS

Maury Maverick, former San Antonio mayor and onetime congressman, was defeated in an attempt to recapture the mayoralty after his five years in Washington as head of the Smaller War Plants Corporation and other agencies. During his two years as mayor, Maverick had been credited with eliminating politics from the health and other departments, reducing traffic deaths and crime by 50 per cent, promoting a spectacular slum clearance and civic beautification project, and generally giving the city the most enlightened administration it had had in many years.

ATHENS, TENN.

The shooting, by which war veterans had protected the ballot boxes of McMinn County in 1946, subsided into solid, unspectacular progress under the leadership of the McMinn County Good Government League. Audits of the county records revealed what everyone knew—corruption and inefficiency—and the League proceeded to put the governmental house in order by gaining the adoption of a county manager form of government.

MUNICIPAL FUNCTIONS

By H. G. Pope

Executive Director, Public Administration Service

GENERAL

The ledger of progress in municipal administration as recorded in greater detail in officials' responses to the *Municipal Yearbook's* inquiries and in its series of articles interpreting municipal trends, shows, for the year 1947, both debits and credits. A single year, of course, is not a sufficient period of time for judging the accomplishments or for measuring the improvement trends, either for a single city or for all cities. On the other hand, a single year should be a sufficient span of time to witness the fruition of a number of progressive developments begun earlier and the starting of many new projects. A digest such as this must necessarily limit itself to citing only a limited number of the numerous reported incidents which together constitute the year's reported municipal administrative changes.

DEVELOPMENTS ON THE CREDIT SIDE

The year 1947 was marked by a number of developments on the credit side, among which are:

1. Annexations, consolidations, and establishment of cooperative arrangements in order to adjust the political area to the natural economic and social area and thereby to overcome the strangulation effects of obsolete political boundaries.

2. Further recognition that the physical deterioration in the centers of our cities and the haphazard and uneconomic fringe growths are not uncontrollable phenomena—a recognition apparent in the establishment of planning agencies in a number of municipalities, and the assignment of an enlarged responsibility to the municipal government, in a number of larger cities, for providing modern transportation in an attempt to overcome the stultifying effects on municipal growth of the almost universally inadequate transportation systems.

3. Adjustment of municipal government machinery to forms which are ultimately more responsive, accountable, and efficient—an adjustment evidenced by the large number of cities which adopted the council-manager form of government during the year and the improvement of administrative processes through the adoption, by a number of cities, of sound systems of financial and personnel administration, the reorganization and consolidation of functions, and through the improvement of services.

DEVELOPMENTS ON THE DEBIT SIDE

Against these and other accomplishments, it may be worthwhile to cite a few of the items appearing on the debit side, representing for the most part significant areas of comparative inaction. In general, only limited progress was made in the furtherance of home-rule for cities. The lack of home-rule was most manifest in the inability of cities to solve their critical financial problems. In some states cities made moderate headway in persuading the public and the rurally dominated state legislatures of the need for more autonomy in meeting their fiscal requirements, but many cities had to resort to makeshift remedies and the curtailment of desirable public services. Few cities fully exploited their opportunity to contribute realistically and aggressively to the solution of critical urban housing problems, both as they relate to the present and to the immediate future. In a number of cities, as new functions were added or old functions were reviewed, boards, commissions, or other administrative organizations were established which were given partial or complete independence of the regular municipal government. The creation of such agencies usually contributes to the complexity and difficulty of municipal administration, and offsets in part the progress made otherwise in decreasing the excessive number (155,000) of governmental jurisdictions. Also, the lack of aggressive experimentation in municipal administrative organization might be mentioned. For example, no new city reported joining the few places which carry on completely integrated school-recreation-library programs or those with integrated police and fire services organization.

POLITICAL ANNEXATIONS AND CONSOLIDATIONS

Annexation remained one of the most popular and direct ways of correcting outdated political boundaries which strangle many municipalities. It is generally conceded that annexation permits a political body to keep up with economic and social forces which spring up beyond its reach, enables a more orderly development of the community, and provides a better and more stable community-wide tax basis and service structure. However, annexations are usually controversial, with residents of the area to be annexed concerned over the prospect of increased taxes and loss of independence and identity in being merged with a large jurisdiction. Similarly, citizens of the annexing jurisdiction may be concerned over the fact that the expense of supplying full municipal services to annexed areas may exceed the revenue provided by the enlargement of the tax base. Even where parties to annexation are agreed on its desirability, in many states legal complications and obstacles make it difficult for municipalities to expand their boundaries. Recent state legislation in Colorado simplifying annexation procedures made it possible for Boulder to annex areas lying within the outer limits of the city. A proposed constitutional amendment in Washington would permit consolidation in the Seattle area. More or less conventional annexations were exemplified in such cities as Louisville, Kentucky, which increased its area by 60 per cent with the annexation of 24.8 square miles of territory; Milwaukee, Wis.; Grand Junction, Col.; Albany and Atlanta, Ga.; and Terre Haute, Ind. The annexation of certain township areas surrounding Toledo, O., will be decided by an election to be held in 1948.

There were several examples of consolidation of local governments. The cities of Goose Creek, Baytown, and Pelly, Tex., were merged with provision for reorganization and renaming. Baton Rouge, La., and East Baton Rouge Parish were consolidated under a strong-mayor form of government. The borough of Southington and city of Stamford, Conn., were consolidated with their respective towns (townships). Daviess and Livingston counties, Missouri, voted to eliminate their township government.

MUNICIPAL AND COUNTY COOPERATION

Much more numerous than annexations and consolidations were a variety of instances of cooperation and joint action by municipalities and counties for the solution of common problems. Several motives contribute to such action. Enforcement of regulatory measures and some types of municipal services may be augmented by administration by a regional authority which has power to act over larger areas. Another reason is that increased volume of activities frequently permits the use of technical personnel and more efficient equipment and methods. Examples of joint action include the establishment of city-county health departments in Seattle and Bellingham, Wash.; Omaha, Neb.; and Lansing, Mich. A joint approach to sewage disposal problems has been authorized for the city of Cincinnati and Hamilton County, Ohio, and for the city of Louisville and Jefferson County, Kentucky. A garbage disposal system which would include Pittsburgh, Pa., was proposed for Allegheny County. The cities of River Rouge, Ecorse, Wyandotte, and Lincoln Park, Mich., cooperated with the villages of Allen Park and Trenton, and Ecorse Township to develop a garbage disposal system. Muncie and Anderson, Ind. signed a contract for operation of a joint airport. Air pollution control measures were the subject of intergovernmental cooperation in an increasing scale and of city-county action in Pittsburgh, Los Angeles, and Milwaukee.

An interesting approach to overcoming certain limitations of local units is revealed in the legislation of two states. Cities in Nevada are now authorized to enter into cooperative arrangements with counties for joint employment of clerical personnel in certain offices while apparently retaining the legal separation of functions of those offices. In Missouri, cities are authorized to cooperate with other governmental organizations for the establishment of joint authorities in the field of public improvements of common services. The operation and development of seaport and airport facilities in Newark, New Jersey, and the airfields in New York City of Idlewild and La Guardia were turned over to the Port of New York Authority, an agency created 26 years ago by New York and New Jersey for the development of terminal facilities. A proposal is under consideration to develop and operate the waterfront facilities, a huge market, and a center for industrial exhibits in New York City by the World Trade Corporation, an authority created recently by the state legislature.

Planning continued to furnish a popular basis for drawing together Units of local government for the purpose of developing regional programs and securing cooperative action. The regional planning commission of Cuyahoga County, Ohio, in which Cleveland participates, will provide planning services for the smaller communities to expedite the development of plans for expressways and other interurban public works. In Atlanta, Ga., an intercounty planning commission of Fulton and DeKalb counties will prepare a master plan for the region to supplement work of the city planning commission. Reorganization of the planning authority in the Detroit area brings together Wayne, Oakland, Macomb, and a part of Washtenaw counties. The planning agency in the Philadelphia-Camden area brought together 42 local governments to prepare a plan of public works improvements covering eight counties in Pennsylvania and New Jersey. Coordination of city planning between Omaha, Neb. and Council Bluffs, Ia., is an example of cooperation across state boundaries.

PUBLIC UTILITIES AND SERVICES

Indications of the increasing acceptance of public ownership and operation of utilities and services were given by a number of municipal developments during the year. In Boston and Chicago, transit lines were taken over by public agencies which will refinance and develop the metropolitan services. San Francisco and Cleveland embarked on transportation system refinancing and modernization programs. Staunton, Va., began the operation of a bus transportation system, and Newark, N. J., began construction of a motor terminal. Forty cities in Alabama, Georgia, and Florida are installing natural gas distribution systems. Thirteen public utility districts in Washington are negotiating for acquisition of property now owned privately. More cities are taking over the operation of cemeteries. Lincoln, Neb.; Escanaba, Mich.; and Higby, Mo., took over cemeteries from private owners, while other cities establishing new cemeteries included Charlotte, N. C.; Klamath Falls, Ore.; Columbia, Mo.; College Station, Tex.; and Keene, N. H. Parking facilities operated as public utilities were innovations in several cities.

HOUSING, TRAFFIC, AND OTHER PROBLEMS

Although legal restraints sometimes make the initiation of a new program difficult, there is evidence that cities can and do assume new functions on demand of their citizens. It appears that, generally, municipal exploration of new fields of governmental endeavor, varying from simple regulatory measures to full operation of service activities, is generally performed by boards and commissions. During the year some cities undertook to alleviate housing difficulties by extending the rent controls initiated by the Federal Government, and assisted in the assembly of land and the financing and construction of dwellings. The vehicle traffic problem, one of the most important and vexatious facing cities, prompted local governments to increase the restricted street areas and provide various types of parking facilities. Flexibility in shifting the emphasis of service also was demonstrated in the localities adopting programs for young people. Cortland, Hudson, and Middleton, N. Y., instituted youth bureaus to coordinate and supplement activities contributing to the welfare and protection of youth, and Yonkers, N. Y., established a juvenile aid bureau in its police department. New York City formed a youth board to coordinate child welfare projects, and a joint state-city agency was set up in Philadelphia to enhance employment opportunities for high school graduates.

FINANCIAL PROBLEMS

Financial problems, including the need for increased revenues, continued to maintain a high priority on the list of significant municipal problems. Rising personal service costs as well as increased prices for materials and equipment continued to affect municipalities adversely, even though many cities were postponing capital improvements in the hope of lower prices in the near future. Recognition of this situation is found in the actions of almost half of the state legislatures in granting new or increased shares of state-collected taxes to local units of government so that, by the end of 1947, there were only four states not sharing state-collected taxes or making grants to other governmental units of the state. There were several examples of state action to broaden the local tax base, an action best exemplified in Pennsylvania, where the legislature authorized other jurisdictions of the state to levy any taxes granted to the commonwealth but not being levied by it. In a less inclusive way several other states authorized local adoption of new taxes, among them Maryland, New Jersey, New York, and Virginia. The sales tax continued to be popular, particularly in California, where the number of cities using this revenue source more than doubled in 1947. Columbus, O. became the fourth city in the country to use the income tax. New Hampshire is now among the states which have withdrawn from the property tax field to leave this source of revenue exclusively to local governments. In a number of cases cities received state aid for streets either for the first time or in increased amounts. New Jersey cities were among these, and in Washington the state will be required to maintain state highways in all towns with a population of 1,500 or less.

In addition to some improvements in local tax structure, a number of actions were taken to facilitate the collection of tax revenues. Some cities, including Bakersfield and Berkeley, Calif., undertook reassessment projects. Both Iowa and Nebraska undertook a positive action to improve assessment practice through the use of county assessors. Wisconsin followed the precedent established by a number of other states by authorizing an *in rem* procedure to enforce tax collection.

PERSONNEL ADMINISTRATION

Confronted with rising salary and wage levels and with the fact that a large proportion of the average municipal budget goes for personal services, municipalities devoted much attention to personnel administration. State and local governments during 1947 employed more people than ever before, and, encouragingly, it was apparent that an increasing number of people showed interest in the public service as a livelihood. There were fewer strikes of public employees in 1947 than in the previous year. A number of states enacted anti-strike legislation with respect to the public service. In a number of instances courts upheld legislation forbidding public employees to join a union. Salaries of state and local employees continued to rise, and by the end of the year a considerable number of cities and counties were using the so-called "cost-of-living adjustment" in relating salaries of their employees to the cost of living index. A significant number of local jurisdictions undertook the development of position classification and pay plans, frequently with outside consulting assistance and probably primarily as a means of working out salary problems. Expansion of the application of the merit principle was found in the establishment of formal merit systems in a number of local governmental jurisdictions.

There were several interesting and perhaps significant developments with respect to certain professional personnel. With the passage of certification bills in New Jersey and New Mexico, the number of states requiring the legal certification of municipal and county librarians was raised to 17. A drive assuming the proportions of a national crusade was effective in materially increasing teachers' salaries, in many instances through the enactment of state legislation fixing minimum teacher pay schedules. The success of this undertaking, launched on a national scale and supported by powerful special interest groups and wide-scale private advertising by press and radio, will undoubtedly suggest to other groups of public employees a new way of lifting salaries in local governments by other than local bargaining efforts. As a novel corollary to teacher pay legislation, New York State is apparently undertaking to establish a system of service rating for teachers in order that meritorious performance rather than solely academic preparation and years of seniority may be given some recognition. This unique venture will undoubtedly be watched with great interest by all public personnel administrators.

Probably one of the most encouraging aspects of personnel administration in local governments during 1947 was found in the vastly increased interest in training activities. Almost every specialized professional group reports greatly increased activity in the training field, and many municipal and statewide training programs were undertaken. Undoubtedly, training still represents one of the most fruitful fields to be cultivated by local governments in the interests of economy and improved services.

PUBLIC HEALTH AND LIBRARY SERVICES

A committee of the American Public Health Association has suggested a plan for creation of some 1,200 local health jurisdictions as a substitute for the existing 18,000 units now administering public health services. The American Library Association's two-year study by its post-war planning committee proposes that public library service be provided by about 1,200 large library systems which would serve the whole population rather than as now by the existing 6,000 or 7,000 libraries which still leave a large proportion of the population inadequately provided for. The coincidence whereby each of these studies arrives at about 1,200 jurisdictions will undoubtedly arouse some speculation on the part of students interested in the question of optimum size and other characteristics of natural administrative areas. Libraries, incidentally, are among those public service functions which are developing new facets. The number of libraries circulating informational films and other audio-visual material is rapidly increasing. The Detroit public library is planning an industrial research service to those firms which are willing to support the maintenance of this service through the device of a non-profit foundation whose board of directors would be the same as the Detroit Public Library Commissioners.

FIRE LOSSES

Sharply increased fire losses in the United States for 1947, plus major fire disasters at Texas City, Tex., and forest fires in New England, pointed again to the desirability of well arranged disaster preparedness plans not only for cities but areas and states. There was substantial activity with respect to the adoption of the revision of municipal building codes, in part by reason of present-day housing problems, and probably in part by reason of safety considerations highlighted by shocking hotel disasters.

WELFARE SERVICES

The increase in the cost to local, state, and national appropriating authorities of welfare services, at a time when employment was high, came unexpectedly to many public officials. This surprise stemmed from the fact that many people are unaware that the number of needy aged persons is continually increasing, both numerically and in proportion to total population; that the closing down of war industries reduced opportunities for work by persons of limited employability; that the post-war breakup of war marriages has left a burden of dependent mothers and children; and that constantly rising living costs also affected recipients of public assistance.

The year 1947 saw continued high activity in the expansion of positive recreation programs in many municipalities. There were several examples of park departments and recreation departments combining into a single agency. As in previous years, apparently the majority of recreation departments which were established were the so-called separate agencies with official boards. The relationship of park, recreation, library, education, and other municipal services was explored in several communities but little real progress was made in changing the patterns now existing as a means of resolving these organizational problems satisfactorily.

INTERNAL ORGANIZATION OF MUNICIPAL GOVERNMENTS

There were many reported instances of positive action to improve the internal organization of municipal governments. One is led to believe that the motivation toward higher standards of governmental organization and services has not been impelled as greatly from the initiative of public officials as from the deficiency in resources to carry on the established routine or by the impatience of the electorate for lack of effective action upon an adopted program. A few of the changes in municipal organization were brought about by the action of state legislatures. A centralized purchasing bureau was authorized in Chicago and established Jan. 1, 1948, as a result of mandatory legislation. Many municipalities utilized the resources of professional associations, leagues, research organizations, and outside consultants to suggest means of improving particular functions.

The reorganizations during the year generally provided for fewer departments by the integration of similar or related functions. Examples of changes also illustrated the increased acceptance of staff services and the strengthening of those services to facilitate management. San Francisco and Los Angeles revised procedures and organization of their planning departments to make them more effective, while Baltimore substituted a department of zoning appeals for the former appeal tax court, board of zoning appeals, and the commissioners for opening streets.

IMPROVEMENTS IN STAFF ORGANIZATION

A few examples of the improvement in staff organization were noted. The Mayor of Denver enlarged his cabinet with two administrative assistants to be responsible for the budget and public relations. A research bureau was instituted in New York City to conduct administrative analyses. The number of reports issued by municipalities displayed the interest of public officials in keeping citizens informed on municipal affairs. Eight cities were reported using radio facilities regularly to publicize their activities. Jackson, Mich.; Pasadena, Calif.; and Kansas City, Mo., conducted courses in courtesy for municipal employees who meet the public in order to improve public relations. Police officers in the Chicago Park District received instruction in minority group relations. New York City opened a school for training key administrative personnel as a means to improve services.

CONSOLIDATION OF OLDER ESTABLISHED FUNCTIONS

More changes were apparent in the consolidations of older established functions. In Newark, N. J., the bureaus of street cleaning and motors were joined into a single bureau of sanitation. The City of New York was considering the possibility of combining the department of sanitation and department of public works into a single unit. New Orleans established divisions of regulatory inspections, traffic engineering, and recreation to take over activities previously performed in several departments. By a similar action, Colorado Springs, Col. created a department of parks and recreation to replace the work of the former golf commission, park commission, and recreation division. Accounting, finance, and clerical activities in Midland, Mich. were brought together in a finance department. San Jose, Calif. recently centralized purchasing. Radio installation and maintenance were centralized in Portland, Ore. The city hospital and health department of Denver were reorganized under a manager of health. Rochester, N. Y., installed a central mailing room under the department of finance. Construction of a central storage yard and garage was authorized in Albert Lea, Minn. Phoenix, Ariz. set up a central payroll department and a centralized warehouse. Water department activities in San Diego, Calif. were centralized under one department head.

Among the larger cities contemplating reorganization are Omaha, Neb.; St. Louis; New Haven, Conn.; Atlanta, Ga.; Denver, Col.; Minneapolis; Oakland, Calif.; and Washington, D. C. The proposed reorganization of Richmond, Va. (subject to legislative acceptance) will eliminate the bicameral council and leave only 14 cities which still cling to that body.

However, the most significant change in municipal governmental machinery lay in the 78 cities and counties which adopted the council-manager form of government in 1947. The adoptions were characterized both by a wide geographical distribution and by a wide range in population and continued the rapid growth of the council-manager plan which occurred in 1946.

Equally encouraging as the increase in the number of council-manager cities was the fact that over two-thirds of the manager appointees were nonresidents and that an even larger proportion had previous experience in public administration, including 57 cases of promotions from one city to another. This combination of circumstances suggests that progress is being made not only in the adoption of administrative structures which are efficient and responsive to public will but in the recruitment and use of competent personnel and in the encouragement of a broader career-service concept in local government.

V. MUNICIPAL GOVERNMENT

PERIODICAL PUBLICATIONS

American City
470 Fourth Ave., New York City.
Municipal Finance
1313 East 60th Street, Chicago.
National Municipal Review
299 Broadway, New York City.
Public Management
1313 East 60th Street, Chicago.
Public Works
310 East 45th Street, New York City.
Sewage Works Engineering
24 W. 40th Street, New York City.
Water Works and Sewerage
155 East 44th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Civic Assn., 901 Union Trust Bldg., Washington, D. C.
American Municipal Assn., 1313 E. 60th St., Chicago, Ill.
American Public Works Assn., 1313 East 60th Street, Chicago.
Government Research Assn., 5135 Cass Ave., Detroit, Mich.
Institute of Local and State Government, University of Pennsylvania, Philadelphia.
Institute of Public Administration, 684 Park Ave., New York City.
International City Managers' Assn., 1313 E. 60th St., Chicago, Ill.
National Civic Federation, 112 Park Ave., New York City.
National Civil Service League, 67 W. 44th Street, New York City.
National Municipal League, 299 Broadway, New York City.
United States Conference of Mayors, 730 Jackson Pl., N.W., Washington, D. C.

DIVISION VI

TERRITORIES AND SPHERES OF AMERICAN INFLUENCE

ALASKA

By Ernest Gruening
Governor of the Territory of Alaska

STATEHOOD

The major events in Alaska history in 1947 were involved with continuation of the Territory's drive toward statehood which began late in 1946 when the electorate voted 9,630 to 6,812 in favor of seeking admission to the Union on a basis of equality with the 48 states. Alaska shares with Hawaii status as one of the two organized Territories of the United States. Alaska has been a United States possession since 1867 and a Territory since 1912. Its population (1947 estimate, 91,000) is greater than that of half a dozen of the states at the time of their admission.

A subcommittee of the House of Representatives held a hearing on statehood in Washington in April, 1947 when Governor Ernest Gruening and others from Alaska appeared to urge the granting of statehood. In August and September, committees of both House and Senate visited Alaska and held a series of hearings on statehood. The Territory's Delegate to Congress, E. L. "Bob" Bartlett, has introduced a bill to admit Alaska to statehood.

CONGRESSIONAL AND OTHER VISITORS

Several other Congressional committees visited Alaska during the summer of 1947 seeking information on national defense preparations, airfield construction, public land matters, and pulp and paper production. Other distinguished visitors included Assistant Secretary of the Interior William E. Warne; H. Rex Lee, Acting Director of the Division of Territories; Joseph T. Flakne, Chief, Alaska Branch, Division of Territories; Juan T. Trippe, president of Pan American Airways, Croil Hunter, president, Northwest Airlines; General of the Army Dwight G. Eisenhower, Chief of Staff; General of the Army H. H. Arnold, Army Air Forces; Mayor William F. Devin of Seattle; Mayor H. V. Fawcett of Tacoma; G. Edgar Vaughan, British Consul for the Northwestern States and Alaska; Roberto Regala, Philippine Consul General; Hugh L. Keenleyside, Commissioner, Northwest Territories, Canada. Alaska also was host to 50 editors and writers of hunting, fishing, and outdoor publications, who visited the Territory in connection with the annual convention of the Outdoor Writers of America.

DEFENSE

Work continued on the construction of military installations and airfields, this activity again providing Alaska's largest payroll. Permanent bases were under construction in the Anchorage and Fairbanks vicinities, and new airfields, larger than any previously known in Alaska were started at several points. The Army Air Forces continued regular cold weather experimental training at Fairbanks, and inaugurated regular flights from that point over the North Pole for weather observation purposes. Late in 1947, Major Gen. Howard A. Craig was succeeded as commanding officer of the U. S. Army, Alaska, by Lieut. Gen. N. F. Twining.

FISHERIES

The 1947 canned salmon pack, though relatively small in volume, was the most valuable in the Territory's history, $87,344,728, owing to record high prices. In 1946 its value had been $53,532,679. Progressive decline of the pink salmon catch in southeast Alaska, culminating in almost a total failure in 1947, gave concern to the industry, to the Federal Government, which is charged with conservation of the Alaska fisheries, and to the Territory, which depends on the salmon pack for a large share of its tax revenues. The halibut and herring fisheries were in better straits, and catches were normal. Shellfish volume also was normal, with the important exception that no butter clams were packed in either 1946 or 1947.

MINERALS

Gold production was greater than at any time since the war, but far short of the level reached in 1940 before the mines were closed to release manpower for war production. Figures on total gold production lag considerably behind the calendar, and 1946 figures are the latest available. In that year Alaska produced $6,738,445 worth of gold; 1941 production was $26,178,000. Other minerals produced in 1946 were principally platinum and coal. It was generally recognized that either a decrease in wages and costs or an increase in the price of gold would be necessary before Alaska again entered the lists as an important producer.

FURS

A decline in market prices seriously affected the value of the fur catch taken in the winter of 1946-47. Furs valued at $5,817,673 were shipped to the United States in 1946. Fur seal, mink, beaver, muskrat, marten, otter, and fox were the most important species.

TIMBER

Exploitation of southeast Alaska's extensive forests for pulp and paper production was investigated as an imminent possibility by several concerns, assisted by the United States Forest Service and the Alaska Development Board. Timber units for pulp manufacture were advertised for sale early in 1948. During the year, a dispute between the Forest Service and groups of Indian residents as to ownership of timber threatened to delay location of pulp plants in the Territory. Although Congress passed special legislation designed to permit development to proceed pending settlement of the timber rights, the situation was still uncertain at the year's end. Volume of merchantable timber in the Tongass National Forest of southeast Alaska is estimated at 78,500,000,000 board feet. The principal species are western hemlock, Sitka spruce, western red cedar and Alaska cedar.

AGRICULTURE

Farms in Alaska produced an estimated value of $2,250,000 in dairy products, potatoes, meat, eggs, vegetables, greenhouse products, poultry, and other crops in 1947. The principal agricultural areas are the Matanuska and Tanana Valleys and the Kenai Peninsula.

COMMERCE

Almost all of Alaska's trade is with the United States. In 1946 shipments to the United States totaled $73,775,896 and from the United States, $75,007,229.

TRANSPORTATION

Alaska, with an area of 586,400 square miles, has only 591 miles of railroad, most of it in the government-owned Alaska Railroad connecting the port of Seward on the Gulf of Alaska with Fairbanks in the interior, and serving Anchorage, the

Matanuska Valley, and Mt. McKinley National Park en route. During the year the Alaska Railroad began a four-year program of completely rehabilitating its roadbed and equipment. Road mileage totals 3,200, including portions of the Alaska Highway which are located within the Territory. Approximately 9,000 persons entered Alaska over the Alaska Highway. Construction was begun in 1947 on new roads on the Kenai Peninsula and in the Fortymile country. A new company began common carrier service by barge to the Alaska Railbelt. In May, 1947, rates by water advanced by 67 per cent over pre-war levels, and the United States Maritime Commission began an investigation of the steamship companies serving the Territory from Seattle.

GOVERNMENT

The regular biennial session of Alaska's Legislature met at Juneau, the capital, in January, February, and March. The Legislature enacted a blanket primary law, petitioned Congress to grant statehood, and passed appropriations which exceeded anticipated revenues by approximately $3,500,000 for the biennium. Revenues for 1947-49 are estimated at $6,686,000. Since appropriations totaled $10,159,183.90 and since the Organic Act which Congress passed respecting goverment in Alaska prohibits the incurring of a debt, the Territorial Board of Administration is regulating expenditures in order to stay within income.

EDUCATION

In the 1946-47 school year, the Territory supported 70 public elementary schools, whose enrollment was 7,297, and 24 high schools, enrollment 1,451. In addition, 96 day schools, with enrollment of 3,636, and three boarding schools, enrollment 870, were maintained by the Alaska Native Service, a Federal agency, for the Indian, Eskimo, and Aleut children of Alaska. The University of Alaska, located at College, Alaska, near Fairbanks, offers four-year courses in agriculture, arts and letters, business administration, chemistry, civil engineering, education, general science, home economics, mining, and pre-medicine. Its enrollment in the 1946-47 year was 334.

OTHER EVENTS AND DEVELOPMENTS

Population continued to increase. New land was opened to settlement. Northwest Airlines began regular service to the Orient *via* Alaska. A disastrous fire burned timber on a large area of Kenai Peninsula during the summer. Sharp earthquake shocks were felt at Fairbanks in October, but damage was negligible. Alaska's worst aviation accident occurred late in October when a Pan American Airways plane struck a mountainside in bad weather near Ketchikan, killing 18 persons.

HAWAII

By Ingram M. Stainback
Governor of the Territory of Hawaii

DESCRIPTIVE

The Territory of Hawaii is a group of eight large islands and numerous islets in the Pacific Ocean, situated 2,091 miles southwest of San Francisco. The land area, 6,435 square miles, is larger than the states of Connecticut, Rhode Island, or Delaware. The Islands are of volcanic origin. From southeast to northwest they are Hawaii, Kahoolawe, Maui, Lanai, Molokai, Oahu, Kauai, Niihau. In addition, stretching northwestward beyond Niihau more than 1,000 miles, is an archipelago of rocks, reefs, and shoals which include Midway. Likewise, 960 miles south of Honolulu and part of the City and County of Honolulu lies Palmayra, a coral atoll.

HISTORY

For more than a century Hawaii has had constitutional government. There was an American settlement in Hawaii before there was one in California. By the time the Islands were annexed in 1898, they were intrinsically American. Now, 47 years later, the Territory is emphasizing her readiness for statehood.

During the economic, political, and social changes of the twentieth century in the United States, Hawaii's legislature has enacted legislation comparable to that of many states. During 1947, for example, the Legislature of Hawaii created an Aeronautics Commission, a forward step taken by only a few mainland areas.

Hawaii's standard time was advanced 30 minutes to place the time zone of the Territory two hours behind Pacific Coast time.

STATEHOOD MOVEMENT

After 47 years as a Territory, Hawaii approached closer to achieving statehood than it has at any other time since annexation as an integral part of the United States. Hawaii's statehood bill (H. R. 49), introduced by Delegate Joseph R. Farrington into the 80th Congress, was one of 11 identical Hawaii statehood bills introduced in January by Congressmen representing all major sections of the country. In March, the House Public Lands Committee heard testimony from such prominent citizens as Secretary of Interior Julius A. Krug, Admiral Chester W. Nimitz, Major General Herron (ret.), and the Governor of Hawaii, Ingram M. Stainback. No witnesses appeared in opposition to the statehood bill. On March 19, the House Committee unanimously recommended immediate statehood for Hawaii. The House of Representatives, on June 30, by a vote of 196 to 133, passed a Hawaii statehood bill for the first time in history. The bill is before the Senate where action is expected during the Second Session of the 80th Congress.

AREA AND POPULATION

For administrative purposes, the Territory is divided into five counties as follows: City and County of Honolulu comprising the Island of Oahu (area 604 sq. mi., estimated population 1947, 360,274); County of Hawaii, comprising the Island of Hawaii (area 4,030 sq. mi., population 73,690); County of Maui, comprising the islands of Maui, Lanai, Kahoolawe, and all of Molokai, except the leper settlement (area 1,164 sq. mi., population 55,904); County of Kauai, comprising the islands of Kauai and Niihau (area 627 sq. mi., population 35,194). The total area is 6,435 sq. mi., population 525,477. The principal cities are Honolulu, the capital, situated on the Island of Oahu, population 268,913, and Hilo, on the Island of Hawaii, population 29,111.

The population of the Territory grew from 423,330 in 1940 to an estimated 525,477 in 1947, exclusive of military and naval personnel. The population is greater than that of any state at the time of admission to the Union, with the exception of Oklahoma. As compared with the several states at the time of the 1940 census, Hawaii exceeded the population of Nevada, Wyoming, Delaware, and Vermont, and its population was comparable to that of four other states—New Hampshire, Arizona, Idaho, and New Mexico. The racial origin of this population, in addition to the native Hawaiians and the Caucasians from the mainland, is Japanese, Chinese, Korean, Filipino, Portuguese. However, citizens of the United States constitute 86 per cent of the population.

GOVERNMENT

During the greater part of the nineteenth century, the islands formed an independent kingdom, but in 1893 the reigning Queen Liliuokalani was deposed and a provisional form of government was proclaimed. Pursuant to the request of the people of Hawaii, expressed through the Legislature of the Republic, and a resolution of the United States Congress approved July 7, 1898, the islands were formally annexed to the United States Aug. 12, 1898. The Organic Act, under which Hawaii is governed, was approved April 30, 1900, since which date the Hawaiian Islands have been functioning as a full-fledged territory and an integral part of the United States.

Executive power is vested in the Governor, who is appointed by the President by and with the advice and consent of the Senate of the United States. The Hawaiian Organic Act provides that, in order to be eligible for appointment to the office of Governor of Hawaii, one shall have resided in Hawaii for at least three years next preceding appointment. The Secretary of the Territory, who becomes Acting Governor, is also appointed by the President by and with the advice and consent of the Senate. There is a legislature of two houses: a Senate of 15 members elected for terms of four years and a House of Representatives of 30 members elected for terms of two years.

Hawaii is represented in Congress by a Delegate, elected biennially. He has the right to debate and may be a member of committees of the House of Representatives but has no vote.

TRADE

The two largest industries in Hawaii are sugar and pineapple. The 1946 sugar crop had an approximate value of $62,444,670; canned pineapples and pineapple juice, and fresh pineapple $60,000,000; tourists $21,000,000; and coffee $1,028,000. Hawaii purchased from the continental United States goods valued at $227,096,301, and sold to the mainland goods valued at $132,698,983.

Overseas vessels arriving and department from ports of the Territory in 1946 numbered 942. This shipping amounted to 6,889,316 gross tons, or 4,111,540 net tons.

AIR TRANSPORT

The Hawaiian Airlines, Limited, began its seventeenth year of commercial air service, and transported 250,585 passengers, a total of 2,116,108 air miles in 1946 compared with 159,803 passengers flown, a total of 1,239,102 miles in 1945. Both Pan American World Airways and United Airlines have daily flights to and from Hawaii and the Mainland, as well as flights to the Orient. In one recent month (October), more than 8,000 persons traveled by air to the Hawaiian Islands.

BUSINESS AND INDUSTRY

Building permits for all kinds of construction for the calendar year 1946 in Honolulu totaled 7,470, with an estimated value of $23,020,734, an all-time record. New construction in 1946 had a value of $17,947,483, compared with the 1945 volume of $8,194,928. There were estimated to be 58,500 families in Honolulu in June, 1946, and only 46,500 dwelling units, or a shortage of 12,000 dwelling units.

Reports of business and official agencies at the end of 1945 showed business to be in a strong financial position. As of December 1946, 38,047 business enterprises were operating, compared with 36,868 in 1945. Wages paid in 1946 decreased to $382,505,553, compared with $402,298,992 in 1945. Postal receipts in Honolulu for 1946 were $12,817,881, a decrease of $8,703,706 over 1945.

SUGAR

The 30 sugar companies operating in the Territory are capitalized for approximately $175,000,000. Some 16,000 persons own stock in these companies. About half of the land planted to sugar cane is owned by the plantations; the balance is leased from estates, from the Territorial Government, and from individuals. The sugar crop for 1946 totaled 680,073 short tons, valued at $62,444,670. Hawaii normally supplies about 14 per cent of the national needs. The National Sugar Act of 1948 provides for a quota of 1,052,000 tons for Hawaii. The 1946 sugar harvest was the lowest since 1902, only 84,379 acres being cut because of the 79-day strike late in the year. There were 212,226 acres planted to sugarcane in 1946. There were 28,598 persons employed on sugar plantations as of December 1946. Hawaii pays a wage scale higher per day on a year-round basis than any other agricultural area anywhere.

PINEAPPLES

Eight pineapple companies in Hawaii operate 12 plantations and nine canneries, producing about 90 per cent of the world's supply. Approximately 63,000 acres of land in the Territory is utilized for pineapple production. Pineapple agricultural labor, excluding the canneries, totals about 14,750, while 11,300 are employed in the industry's manufacturing operations. These figures exclude employees of the harvesting season from June to September, when an estimated 35,000 persons are employed. The total pack of eight member companies of the Pineapple Growers Association of Hawaii for the fiscal year 1946 was 17,722,102 cases. During 1946, 378,514,738 pounds of canned pineapple, valued at $40,537,968; 23,933 boxes of fresh pineapple, valued at $61,682; and 34,636,856 gallons of pineapple juice, valued at $21,487,228, were shipped to the mainland.

COFFEE

Coffee production for the crop year 1946 was 6,300,000 green pounds compared to 7,656,048 pounds in 1945. Coffee ranks third in Hawaii's exports, with an approximate value, in 1946, of $1,028,000. Commercial production is confined to about 4,000 acres in the Kona area on the Island of Hawaii.

FINANCES

Territorial tax collections on business and otherwise for 1946 amounted to $42,356,209, as compared to $41,272,600 for the previous year. Cash on hand and in banks on Dec. 31, 1946, amounted to $32,555,952 as compared with $36,798,496 at the beginning of the year.

The gross bonded indebtedness, as of June 30, 1947, amounted to $10,996,000. The net bonded indebtedness, after the deduction of sinking fund assets of $2,973,326, amounted to $8,022,674, as compared with $28,511,458 in 1939, a decrease of nearly 72 per cent in eight years.

The net assessed valuation of real and personal property reached its highest peak in 1946. Real property was valued at $551,285,163, as compared with $500,493,838 for the year 1945. The total value of real and personal property was $689,557,809.

Total deposits in the four banks and 38 branches in Hawaii, on Dec. 31, 1946, amounted to $477,538,912, as compared with $105.984,466 ten years ago on Dec. 31, 1936.

The total internal revenue collections in Hawaii for the fiscal year 1947 exceeded the total collections of any one of 12 states, being 106,314,370.

ARMED FORCES

Naval personnel of the 14th Naval District averaged 14,500 officers and enlisted men during 1946, compared with 43,200 in 1945. Civilian employees in the district numbered 18,000. Navy military payroll totals in Hawaii were approximately $85,000,000. The value of business with local merchants for supplies and provisions approximated $4,500,000 in 1946.

Army personnel in the Hawaiian area averaged 30,000 in 1946, compared with 135,000 in 1945. Total military payroll for the period was $37,049,139. The average number of civilian employees of the War Department was 18,000, contrasted with 26,000 a year previous. Gross annual pay of these employees was $57,436,246. Local purchases by the Army Exchange Service amounted to $2,828,589 during 1946. Total local expenditures by the Army in 1946 were estimated to be $124,000,000.

PUERTO RICO

By JESÚS T. PIÑERO
GOVERNOR OF PUERTO RICO

DESCRIPTIVE

The Island of Puerto Rico is the smallest and most easterly of the four Greater Antilles. These islands, together with the Lesser Antilles, form a chain of some 200 islands which reach from the tip of Florida to the northeast coast of Venezuela. San Juan, capital of Puerto Rico, is about 1,600 land miles southeast of New York, 1,000 miles southeast of Florida, and about 1,000 miles northeast of the Panama Canal.

Puerto Rico is approximately 100 miles long by 35 miles wide. With its three small satellite islands of Vieques, Culebra, and Mona, its territory contains 3,435 square miles, almost three-quarters of which is in the mountainous interior. Puerto Rico is in the sub-tropics, but continuous trade winds give it a moderate all-year temperature averaging 76° F. Rainfall is heavy throughout the year except in certain sections on the south coast where crops are grown under irrigation.

HISTORICAL

The Island was discovered by Columbus Nov. 19, 1493, on his second voyage. In 1508, it was conquered by the Spaniards, and its Indian name "Borinquen" was changed to Puerto Rico (Rich Port). Puerto Rico continued under Spanish rule for almost 400 years. It was ceded to the United States Dec. 10, 1898, at the end of the Spanish-American War.

POPULATION AND LANGUAGE

In 1947, Puerto Rico had an estimated population of 2,200,000. San Juan, on the north coast, is the largest city with an estimated population in 1947 of 225,000. The second and third largest cities are Ponce on the south coast with an estimated population of 118,000, and Mayaguez at the western end of the Island, with an estimated population of 90,000 inhabitants.

Spanish continues to be the mother tongue of Puerto Rico, although English is taught in the schools. The official language is English, and most commercial correspondence with the mainland is carried on in English.

GOVERNMENT

The Island is governed under the Act of Congress of March 2, 1917, known as the Organic Act, and subsequent amendments. Heretofore, the key officers of the government—Governor, Commissioner of Education, Auditor, Attorney General, and Judges of the Supreme Court have been appointed by the President of the United States. Under the 1947 amendments to the Organic Act, the Puerto Ricans will elect the Governor in the elections of 1948. The Judges of the Supreme Court and the Auditor will continue to be appointed by the President and all other officials will be appointed by the Governor. Other departments include Health, Interior, Treasury, Agriculture and Commerce, and Labor.

On July 25, 1946, President Truman nominated Jesús T. Piñero, then Resident Commissioner, to the Governorship of the Island. Piñero was inaugurated Governor Sept. 3, 1946, marking the first time under either Spanish or United States jurisdiction, that a native-born Puerto Rican has been named Governor. Dr. A. Fernós-Isern was appointed Resident Commissioner to fill Piñero's unexpired term.

Puerto Ricans elect the legislature which is made up of 19 Senators and 39 Representatives. They also elect a Resident Commissioner to the United States Congress who may participate in debate and be a member of various committees but has no vote. Elections are held at four-year intervals and on the same day as national elections. The Island is divided into 77 municipalities, each with its own mayor and Council whose acts are subject to review by the Executive Council, composed of the Governor, Attorney General, Commissioners of Health, Interior, Agriculture and Commerce, Finance, and Labor. In the November 1944 elections, the Popular Democratic Party, under the leadership of Luis Munoz Marin, President of the Senate of Puerto Rico, gained overwhelming control of both houses of the legislature. Governor Piñero and Commissioner Fernós-Isern are members of the Popular Democratic Party.

JUDICIARY

The judiciary system consists of the Insular Supreme Court, the District Court of the United States for Puerto Rico, the district and municipal courts, and justices of the peace. Appeals may be made in certain cases to appropriate higher courts, including the Supreme Court of the United States. The Chief Justice and four Associate Justices of the Supreme Court of Puerto Rico are appointed by the President, by and with the consent of the U. S. Senate. Statutory laws of the United States, not locally inapplicable, are in effect in Puerto Rico unless otherwise provided.

REPRESENTATION

Puerto Ricans are American citizens but may vote in Presidential elections only if they are residents of the mainland. They send no representatives to Congress but are represented in Washington by a popularly elected Resident Commissioner who has the right to debate, hold committee assignments, and introduce bills, but does not have the right to vote.

POLITICAL STATUS

Puerto Rico has been held by the Supreme Court to be unincorporated territory of the United States—in other words, "belonging to but not a part of." The present political status is unsatisfactory to Puerto Ricans. In October 1945, President Truman recommended that, since the existing form of government in Puerto Rico seemed unsatisfactory to a large number of its inhabitants, Congress should enact legislation to submit various alternatives to the Puerto Rican people in order that they might have an opportunity to express their desires concerning their political future. The following alternatives were suggested by the President: (1) the right of the Puerto Ricans to elect their own Governor with a wider measure of local self-government, (2) statehood, (3) complete independence, and (4) a dominion form of government. A bill incorporating these suggestions was introduced; however, it was not reported out of Committee. In the 1947 amendment to the Organic Act, provision was made whereby the people of Puerto Rico will elect their own Governor in the 1948 elections.

FEDERAL ACTIVITIES IN PUERTO RICO

Almost all major Federal government agencies include Puerto Rico in their fields of activity. The most important exception is the Social Security Act. Only the Child Welfare and Public Health sections operate in the Island. The Federal Government has occasionally provided special programs of which the most outstanding was the Puerto Rico Reconstruction Administration, established in 1935 by Executive Order to stimulate employment within Puerto Rico.

Administrative jurisdiction of Puerto Rico is under the Department of the Interior, and the Governor of Puerto Rico makes his annual report to the Secretary of the Interior.

Although Puerto Ricans, with few exceptions, pay no Federal income taxes, the Island receives limited Federal aid similar to the states. In addition, the Internal Revenue Taxes collected on Puerto Rican manufactures sold in continental United States are turned back to the Insular Treasury.

Puerto Rico is inside United States tariff walls which results in great dependence on the mainland both as a market for exports and a source of imports. It is one of the largest customers of the United States in the Western Hemisphere. Puerto Rico is also subject to the coastwise shipping laws which prohibit the Island from shipping to and from continental United States and between ports on the Island in foreign boats.

ECONOMIC SITUATION

In 1947, Puerto Rico had an estimated population of 640 persons per square mile. It is one of the most densely populated agricultural countries in the world. In addition, large areas of the Island are mountainous and are useless for agricultural cultivation. This lack of balance between population and resources accounts for the continued low standard of living for at least two-thirds of the population.

Puerto Rico has three principal remunerative crops—sugar, tobacco, and coffee—of which sugar is by far the most important. In 1947, 1,087,881 tons of sugar were produced in Puerto Rico. The Sugar Act of 1948 sets the 1948 quota for shipment of sugar to the continental United States at 910,000 tons. Although coffee exports have dwindled to practically nothing, the industry is still of great economic importance and ranks second to sugar cane in area of cultivation. To overcome the threat of hurricanes, which in 1928 and 1932 practically demolished the coffee plantations, the Insular Government in 1945 set up a plan of insuring both crop and plantations. In 1947, payment of subsidies to coffee growers and workers was approved by the Island's legislature.

A decline in the production of rum was brought about by the overstocked condition of the markets in the continental United States.

HEALTH

The birth rate increased in 1946 to 42.8 live births per 1,000 population as compared with 42.3 in the previous year. The death rate fell from 14.1 per 1,000 population in 1945 to 13.3 in 1946. The School of Tropical Medicine in San Juan is the leading American research school for tropical diseases.

EDUCATION

There is a serious shortage of both schools and teachers in Puerto Rico, but enrollment in public schools continues to increase. School enrollment in 1947 was 460,000, an increase of 110,085 over the previous year. There are 300,000 children who can not go to school because of lack of schools. Illiteracy has been reduced to 29 per cent; $23,000,000 were appropriated for education during the fiscal year 1946-47. The University of Puerto Rico, located in Rio Piedras, had a total enrollment of 8,265 in 1946-47.

The language problem in Puerto Rico is a very serious one. A bill providing that teaching be done in Spanish, with English as a required subject, was passed by the 1946 legislature over the Governor's veto and sent to the President, as required in the Organic Act, who upheld the veto.

LABOR

Organization of labor has progressed rapidly in recent years. There are two Island-wide labor organizations—Free Federation of Labor, formed in 1899, affiliated with the American Federation of Labor, and General Confederation of Workers, formed in 1940. In 1945, the Confederation split into two factions, each retaining the parent name.

Wages in Puerto Rico are higher than elsewhere in the Caribbean for both industrial and agricultural workers. Minimum wage rates are established under both Federal and Insular legislation. Although wages have risen to an all-time high, they have barely kept up with increased living costs and are still below United States standards. Despite this, there were no serious labor disputes in Puerto Rico in 1947.

INDUSTRIAL DEVELOPMENT

Realizing that increased industrial development is necessary to help solve Puerto Rico's economic problems, the Insular Government, on May 11, 1942, established the Puerto Rico Industrial Development Company to establish and operate industries on behalf of the Government and to help finance, and assist private industry. In 1947, factories under the Company's direction included glass container and cement plants, which use native sand, clay, and limestone, and a pulp and paper plant which manufactures paperboard from waste paper. There are also a clay products plant, shoe and leather factories, and a textile mill.

The Puerto Rico Development Bank, created by the Insular Legislature in 1942, is closely associated with the industrialization program. This bank has three primary functions: (1) to carry on refinancing operations of various kinds; (2) to act as a central institution through which all financial operations of the Insular Government can be managed; and (3) to help finance the long-range industrial development of the Island, through the Development company and private business.

AGRICULTURE

Puerto Rico's only important natural resource is land. A primary objective, therefore, is to intensify and expand land uses. On April 24, 1945, the legislature created the Agricultural Development Company, with authority and funds to develop to the utmost the commercial possibilities of the Island's agriculture.

Various other Federal and Insular government agencies are at work on the problem of making the best use of the land. Three research centers —Agricultural Experiment Station of the University of Puerto Rico, Federal Agricultural Experimental Station, and Institute of Tropical Agriculture—carry on research to develop better plant strains and improve production techniques.

Another important aspect of the Government's program is soil conservation. In March 1946, the legislature passed the Soil Conservation Districts Act, providing for the creation of soil conservation districts and authorizing such districts to adopt programs and regulations for the protection of land against soil wastage and erosion.

LAND PROGRAM

Because the land area of Puerto Rico is so limited, in relation to population, and because land ownership has been concentrated in the hands of a comparatively small group, the question of land ownership and land use is supremely important. The Insular Legislature, in the Land Act of 1941, implemented the Joint Resolution adopted by Congress in 1900, since incorporated into Puerto Rico's Organic Act, providing that no corporation or partnership engaged in agriculture on the Island may own or control more than 500 acres of land.

The Land Act established the Land Authority to purchase land, primarily from owners of more than 500 acres and directed distribution of such land in three ways: (1) in plots of from one-quarter cuerda to three cuerdas (one cuerda is slightly less than one acre) to landless agricultural workers (agregados); (2) in parcels of from five to 25 cuerdas to individual farmers as family sized farms; and (3) in large farms of from 100 to 500 acres which are leased to experienced farmers to be operated on a proportional profit basis. Laborers on these farms share in the profits, in addition to receiving regular wages for their work.

FINANCES

General fund collections were estimated at $82,249,632 for the year ended June 30, 1946; trust funds, $49,244,261. Revenue from the shipment of rum to the mainland diminished sharply from the level of the previous year, and was a negligible source of governmental income for the year. Inflation, however, of incomes brought about a substantial increase from Insular income taxes.

LEGISLATION

In the year 1947, the Insular legislature created a division within the Department of Labor to administer a protective program for workers who desire to migrate to the mainland. The Legislature expressed itself as not interested in either encouraging or discouraging migration but only in preventing maladjustments and exploitation of migrants.

It also provided for a complete exemption from Insular personal and corporation income taxes for 12 years, and a partial exemption from excise and realty taxation, for "new" enterprises, as defined by law, in order to encourage development of industry for local and export markets.

ECONOMIC AND SOCIAL PLANS

Puerto Rico's problems are mainly economic. It has a rapidly increasing population and inadequate income production. The program of the present Administration is to intensify the use of resources and to develop new methods of increasing income as well as to improve and extend social services, which are at present far below the accepted minimum standards.

The accomplishment of this program depends upon careful budgeting of government income. Responsibility for evolving a financial program to insure the best use of Insular Government funds lies with the Puerto Rico Planning Board, which was established May 12, 1942. The Board each year submits to the Governor and the Legislature a six-year plan or financial program which serves as a guide for appropriations.

THE VIRGIN ISLANDS OF THE UNITED STATES

By William H. Hastie

Governor of the Virgin Islands of the United States

DESCRIPTION

The most recent of United States possessions, the Virgin Islands, formerly known as the Danish West Indies, were acquired by purchase from Denmark in 1917 for $25,000,000. This price represents the highest paid for any territorial possession of the United States, but was considered reasonable at the time in the light of military and strategic necessity.

This group comprises three islands: St. Croix, 82 square miles in area, with an estimated population of 13,000 in 1946; St. Thomas, 32 square miles with an estimated population of 16,200; St. John, 19 square miles, with a population of 800 and approximately 50 smaller uninhabited islands. The islands lie approximately 1400 miles southeast of New York and 39 miles east of Puerto Rico. The seat of government is at Charlotte Amalie on the island of St. Thomas, whose harbor is one of the finest in the Caribbean. The Governor and the Government Secretary are appointed by the President, while the Administrator for St. Croix and other heads of departments are appointed by the Secretary of the Interior. The two municipalities of St. Thomas—St. John and St. Croix, corresponding to the three largest islands—each elects a Municipal Council by universal suffrage with power over municipal finances subject to review by the Governor. These Councils also confirm the Governor's appointments of municipal officers. The present Governor is William H. Hastie who succeeded Charles Harwood May 17, 1946.

EDUCATION

The public school enrollment in St. Thomas is 2,624 of which 785 pupils are enrolled in the junior and senior high school grades. In St. Croix the enrollment is 1,570 with about 361 pupils in high school grades. The average annual expenditure per child in St. Thomas is $79.62. In St. Croix the average cost per pupil is $52.59. The average salary of teachers in St. Thomas is $1,400 per annum and in St. Croix $1,035.

FINANCE

The revenues of the Municipality of St. Thomas and St. John were $817,898.53 compared with $862,396.95 in the preceding year. Budget expenditures were $1,121,306.94. Income tax collections were $511,870.18 as compared with $622,573.27 in the preceding year. The revenues of the Municipality of St. Croix were $273,026.86 as compared with $262,257.54 in 1946. Budgeted expenditures were $428,226.86. Congress appropriated $135,000 toward the expenses of local government in St. Croix. Income tax collections there amounted to $86,232.22 as against $103,069.94 in the previous year.

TRADE AND COMMUNICATION

Shipping improved steadily during the year. There are now regular schedule calls of tourist ships of the Alcoa and Delta Lines. Calls at the port of St. Thomas are becoming more frequent after wartime suspension. Three hundred and sixty ocean-going vessels with a gross tonnage of 2,631,887 entered St. Thomas harbor as against 353 with a gross tonnage of 1,493,725 in 1946. The volume of shipping is still considerably lower than the pre-war years. Imports into the Virgin Islands from the United States during the calendar year 1946 totaled approximately $1,782,577; exports from the Virgin Islands to the United States for the same period amounted to approximately $750,987.

A steady flow of passengers is maintained by the Pan American Airways and Caribbean Atlantic Airlines which serve the islands with two daily flights. St. Thomas and St. Croix are adequately provided with roads. A few miles of roads have been developed in St. John. There is radio telephone service among the three islands, and with continental United States through Puerto Rico since 1946.

THE SUGAR INDUSTRY

The growing and processing of sugar cane and its allied industries and the business derived through harbor activities in St. Thomas constitute the economic life of the islands. The rum industry which did such a profitable business during the war years is now on the decline. Exports in 1947 amounted to 244,809 proof gallons from St. Thomas and 146,071 proof gallons from St. Croix as against a total of 955,049 proof gallons in 1946.

St. Croix produces the entire sugar crop of the islands. This basic industry suffered seriously during the year because of severe drought. Despite increased acreage and higher prices through subsidies the yield at the end of the year dropped from 47,160 tons in 1946 to 36,304 tons in 1947 and with a corresponding reduction in sucrose content from 4,970 tons in 1946 to 2,946 tons in 1947.

TOURISM

Plans are on foot to develop and construct additional facilities for the accommodation of tourists. There is every indication that very substantial revenues could be derived through this source. All available hotels are crowded to capacity with bookings far in advance.

ECONOMIC PLANS

Great emphasis is now being laid on the need for greater production and consumption of local products. The Department of Commerce and other local agencies are developing plans which might help to solve this situation.

The Federal Public Works Program, delayed considerably because of material shortages and inadequate shipping facilities, is now under way. Extensive surveys and supervision in all fields conducted by the Federal Works Agency are carried on simultaneously with the view of starting projects as soon as materials and equipment are available.

There are a number of favorable factors in the financial and economic trends which with proper co-ordination and management would indicate an improvement in future economic conditions.

THE VIRGIN ISLANDS COMPANY

The Virgin Islands Company is a government corporation chartered by the Municipal Council of the Municipality of St. Thomas and St. John for the purpose of managing and operating certain lands, buildings, and factories owned by the United States with the view of effecting the economic rehabilitation of the people of the Virgin Islands by revitalizing agriculture and industry.

During the fiscal year ended June 30, 1947, the Company ground 36,304 tons of sugar cane of which 14,637 tons were purchased from Federal Homesteaders and small growers. This in turn produced 2,946 tons of raw sugar and 99,858 gallons of cane syrup for the manufacture of rum. The Company also manufactured 241,714 proof gallons of rum, with an excess of 527,657 proof gallons aging in the Company's warehouses.

The Company is still the largest employer of labor in St. Croix with a payroll varying from 500 to 1,500 persons, according to the season of the year. The current wage of the Company's agricultural labor $2.00 per eight-hour day is the highest in the history of the Virgin Islands.

While the year 1947 was the most difficult in the Company's history because of severe droughts and a reduction in the sugar crop to approximately 60 per cent of anticipated production, the Virgin Islands Company continues to stand between the people of St. Croix and destitution.

GUAM AND AMERICAN SAMOA

By William E. Neely
Lieutenant USN; Office of the Chief of Naval Operations, Navy Department

GUAM—DESCRIPTIVE AND HISTORICAL

Guam, the largest island in the Marianas group, is situated in mid-Pacific 1,500 miles east of Manila, 1,300 miles south of Japan, 3,337 miles from Honolulu, and 5,053 miles from San Francisco. It is volcanic in origin and has an area of 217 square miles. The southern part of the island is high and mountainous with a range of hills along the west coast from 700 to 1,300 feet high. The northern part is a plateau, ranging from 200 to 600 feet in elevation, and the soil, though fertile, is very shallow.

Generally, the climate of Guam is pleasant. The average yearly rainfall is 69.13 inches, 65 per cent of which falls in July and September. The minimum temperature is about 70 degrees and the maximum about 90 degrees. The island is in the typhoon belt of the western Pacific and occasionally is visited by severe storms.

Guam was discovered by Magellan in 1521 and for many years thereafter was an important stopping point for Spanish ships plying between Mexico and the Philippines. In 1898, at the close of the Spanish-American War, it was ceded to the United States and was placed under the control of the Navy Department by Executive Order. It was invaded by the armed forces of Japan Dec. 10, 1941 and was occupied by the Japanese until the re-entry of United States forces in July 1944. After the island was declared secured on Aug. 10, 1944, at the cost of 1,353 marines killed and many thousands wounded, thousands of United States military personnel and native Guamanians began the colossal task of transforming Guam into a fortress and staging area for the final assault against Japan. Within one year Guam became one of the most powerful of American advanced bases in the Pacific.

Guam now is in the process of being rebuilt and remodeled. The magnitude of the task can best be appreciated by taking into account that all the 1,750 homes in the capital city of Agana were destroyed, and the towns of Sumay, Agat, Piti, and Asan were almost completely demolished by combat operations during the war.

THE PEOPLE OF GUAM

The natives of Guam are called Chamorros. The origin of the ancient Chamorros is obscure, but it is probable that they are a group that became detached and isolated in the Marianas Islands from the Prot-Malays in their migration eastward from the mainland of Asia. By reason of wars, storms, and pestilence the estimated population of 50,000 in the early days of Spanish rule had decreased to 9,630 in 1901, according to a census taken at that time by the Naval administration. A vigorous campaign in the field of public health and sanitation was instituted by the Naval government with the result that the indigenous population had increased to 24,268 as of July 1, 1947. (In addition the average transient or off-island population of Guam consisting of military personnel and their dependents, contract and civil service employees, and other off-island persons is 55,000.) While English is the official language of the government and of the schools, the native Chamorro language is widely spoken in the daily life of the people. The predominant religion is Roman Catholicism. Throughout the Japanese occupation the people remained completely loyal to the United States and cooperated with its military personnel in harassing the Japanese.

GOVERNMENT

Guam is a possession of the United States. The inhabitants are not United States citizens but are citizens of Guam and nationals of the United States. While the U. S. Constitution does not extend to Guam, most of the guarantees of the Bill of Rights have been secured to the Guamanians.

A senior naval officer is commissioned by the President as Governor of Guam and the same officer is designated by the Secretary of the Navy as Commander, Marianas Area, and Island Commander, Guam. The government is administered by departments, at the head of each of which is a naval officer or a civilian specialist responsible to the Governor and assisted by Guamanian civilians. The Guam Congress, composed of a House of Council and a House of Assembly, is elected by the citizens of Guam without regard to race, color, or sex. Prior to Aug. 4, 1947 the Guam Congress acted in an advisory capacity only to the Governor. On that date the Secretary of the Navy by proclamation vested certain legislative powers in the Guam Congress. Pursuant thereto legislation passed over veto of the Governor goes to the Secretary of the Navy for final decision.

The judicial system of Guam consists of the Court of Appeals composed of a civilian Chief Justice from the United States appointed by the Secretary of the Navy and of four Associate Justices, two of whom are Guamanian citizens and the remaining two of whom are military officers with legal training and background; of the Superior Court established by the act of the Guam Congress Nov. 1, 1947 and presided over by the Chief Justice of Guam; and of the Island Court, the Justice Court, and the Police Court, all of which are presided over by Guamanian judges.

Rear Admiral Charles A. Pownall, USN, was inaugurated Governor of Guam on May 30, 1946 and is now serving in that capacity.

BUSINESS AND INDUSTRY

Guam has never been a very productive island. The natural resources are of no commercial significance. All forms of business and agriculture were disrupted by the war. The gathering of copra (dried coconut meat), formerly the chief industry of Guam, has almost ceased. A few small industrial plants, such as one soap factory, one ice plant, one ice storage shed, and two soft drink bottling concerns, provide a limited source of income for the island.

At the end of the fiscal year 1947, there were 587 small business enterprises owned and operated by Guamanians with annual gross sales of $938,600. For the most part however, the island population earns its livelihood from employment by the United States Government. As of Dec. 31, 1946 a total of 3,104, or 25 per cent of the Guamanian population over the age of 16 years, were employed in this manner. Payrolls for the six months period ended Dec. 31, 1946 aggregated $1,117,026.40. The Guam Department of Agriculture has made an effort to stimulate farming on Guam as a means of supplementing the food supply of the island. At the present time, however, Guam may be likened to a city of 80,000, as dependent upon off-island sources for food and other necessities as a comparable city in the United States would be dependent upon sources beyond its corporate limits. The banking needs of Guam are adequately met by the Bank of Guam which reported total resources of $10,172,115.55 as of the close of 1946.

EDUCATION

At the end of the war it was necessary to rebuild every school building on Guam. Twenty-two have been completed. A professional educator from the mainland is employed as superintendent of schools, and other mainland educators are provided for those positions for which qualified Guamanians are not available. Of the 212 teachers employed in the school system, 190 are Guamanians. The total enrollment is 7,594, and the proportion of enrollment to population of school age is estimated at 95 per cent. The percentage of literacy, according to the 1940 census, was 84 per cent. One year of college level work is offered in the Normal Training Course instituted on Guam in September 1946. In the summer of 1947 the University of Hawaii conducted a branch session on Guam, offering credit courses for Guamanian teachers. Several Guamanians are attending colleges in the United States and Hawaii. An active program of vocational training is now in operation in the school system with 653 persons participating.

MEDICAL CARE AND HEALTH

Upon the return of the United States forces to Guam in 1944, vigorous action was taken to provide greatly needed medical care for Guamanians and to reinstitute a program of public health and sanitation. Accordingly, upon the cessation of combat operations on the island, a hospital for the Guamanian people was provided at the site of one of the Navy fleet hospitals, and on March 15, 1946 it was designated the Guam Memorial Hospital in honor of Guamanian fervor and loyalty in support of the Allied cause. This hospital, having a capacity of 300 beds, is being used on an interim basis until permanent facilities can be constructed. Other medical facilities provided include a school for native medical practitioners, a school for native nurses, and a school for native dental practitioners. A comprehensive public health program now is functioning smoothly. The steady increase of the indigenous population of Guam from 9,630 in 1901 to 24,268 in 1947 attests the general high standards of sanitation and medical care maintained on the island.

LEGISLATIVE AND OTHER DEVELOPMENTS IN GUAM

Progress in governmental matters was marked by the appointment of a civilian Chief Justice of Guam to preside over the Court of Appeals and the Superior Court, by the vesting of certain legislative powers in the Guam Congress, and by the greater participation of Guamanians in government. Early in 1947, a study of conditions on Guam was made by a civilian committee appointed by the Secretary of the Navy of which Dr. Ernest M. Hopkins was chairman and Governor Maurice J. Tobin and Dean Knowles A. Ryerson were members. The committee report based on extensive hearings and inspections on Guam contained recommendations for United States citizenship and an Organic Act for Guam. The Secretary of the Navy on May 28, 1947, in a joint statement with the Secretary of the Interior before a Congressional committee, concurred in these recommendations of the civilian committee. At the end of 1947, 11 bills were pending before the United States Congress to provide an Organic Act for Guam or to confer United States citizenship upon the people of that island.

On Sept. 6, 1947, the Guam Congress passed a resolution expressing confidence in the Naval government of Guam and expressing the desire that the Navy Department continue to have administrative responsibility for Guam until the rehabilitation of the island should be completed and the economy fully restored. As of Nov. 1, 1947, a total of 2,923 claims for personal injury, death, and property damage as a consequence of the war and for use of land by the Government were paid in a total amount of $4,404,611.86. Such claims are being processed by the Guam Land and Claims Commission appointed pursuant to Public Law 224 of the 79th Congress.

AMERICAN SAMOA—DESCRIPTIVE

American Samoa, situated in the mid-Pacific just below the equator and 4,150 miles southwest of San Francisco, includes the island of Tutuila on which the U. S. Naval Station is located; the Manua group consisting of the islands of Tau, Olosega, Annuu, and Ofu; Rose Island; and Swains Island. These islands, with the exception of Swains, were acquired by the United States Dec. 2, 1899 by treaty with Great Britain and Germany. Swains Island was annexed to American Samoa by joint resolution of Congress, approved March 4, 1925.

The islands of American Samoa, with the exception of Rose Island which is an uninhabited coral atoll, are of volcanic formation and mountainous, rising in places abruptly from the sea. The total area of the group is 76 square miles. Pago Pago Bay, one of the safest and best harbors of the South Seas, nearly cuts the island of Tutuila in half.

The climate of the islands is tropical but equable. From May to November strong southeast winds are experienced, and during the other months the winds are variable. Moderate gales and occasional hurricanes have been recorded. The average yearly rainfall for 41 years has been 193.5 inches. The yearly temperature ranges from 70° to 90° Fahrenheit.

The soil of the islands is of two kinds, clay and sand. In the valleys, it is alluvial and quite fertile for growing tropical fruits and taro. Owing to heavy rainfall, the soil on hillsides is thin, and there is no subsoil.

THE SAMOAN PEOPLE

The indigenes of American Samoa are Polynesian and closely akin to the indigenous people of Hawaii and to the Maoris of New Zealand. The Samoan language is probably the oldest form of Polynesian speech extant. The population of American Samoa, as of July 1, 1947, was 17,550, mainly Polynesian, an increase of more than 25 per cent over the last pre-war population figure reported.

GOVERNMENT

American Samoa, classified as a possession of the United States, is under the control of the Navy Department and is administered by a Naval governor. The inhabitants, citizens of American Samoa, are nationals but not citizens of the United States. While the Constitution of the United States does not extend to American Samoa, the Codification of the Regulations and Orders for the government of American Samoa, printed in both English and Samoan languages, contains most of the guarantees of the Bill of Rights.

For purposes of local administration, American Samoa is divided into three districts, each having a Samoan governor and maintaining village, county, and district councils composed of hereditary chiefs and their advisors. The chief Samoan council, or Fono, meets annually and serves in an advisory capacity to the governor in matters relating to the welfare of American Samoa. The judicial power is vested in Village Courts each presided over by a village magistrate; six District Courts each presided over by a Samoan District Judge and a civilian judge from the United States; and a High Court presided over by a U. S. civilian Chief Justice and two Samoan Associate Justices selected from the District Judges. Capt. Vernon Huber, USN, the present Governor of Samoa and Commandant of the Naval Station, Tutuila, assumed office April 21, 1947.

EDUCATION

For the year ended June 30, 1947, instruction was offered in 46 public and seven private schools having a total enrollment of 4,055 and employing 108 Samoan and 16 non-Samoan teachers with professional training, as well as two Samoan principals. The Department of Education is headed by a naval reserve officer who in civilian life was a professional educator with a Ph.D. degree. The curriculum of the public schools is based on studies and recommendations made by members of the faculty of the University of Hawaii and by other educators experienced in the problems of Polynesian education. Attendance is compulsory for children between the ages of 7 and 15. The Government Experimental Farm is the most important phase of adult education.

ECONOMY

The natural resources of American Samoa are of no economic importance. There are no minerals, timber, or fish of sufficient quantity to justify industrial development for export. Copra (dried coconut meat), the most important crop for commercial sale, produced a gross income of $133,307.44 for the period July 1, 1946-July 1, 1947. The flourishing business in Samoan handicraft, which was developed during the war, has been continued under the direction of the Department of Samoan Industry, a government cooperative. Income from this source, principally from the sale of Laufala floor mats and curios, in fiscal 1947 amounted to $58,196.37. For the year ended June 30, 1947, the Bank of Samoa reported resources of $1,786,963.57.

MEDICAL CARE AND HEALTH

The new Samoan Hospital established in 1946 has a capacity of 200 beds and a staff of 12 Navy medical, dental, and hospital corps officers, nine Navy nurses and 32 Navy corpsmen, as well as three Samoan medical practitioners and 38 Samoan nurses. Included in the facilities of the new hospital are an insane asylum and a leprosarium. The hospital consists of eight modern well lighted and well ventilated wards, modern operating rooms, laboratory treatment room, and dental clinic. A motorized Child Health Clinic, recently established, visits villages distant from the hospital.

LEGISLATION

Early in 1947 a civilian committee, appointed by the Secretary of the Navy, of which Dr. Ernest M. Hopkins was chairman and Governor Maurice J. Tobin and Dean Knowles A. Ryerson were members, made a study of conditions on American Samoa. In the committee's report, based on extensive hearings and investigation on the island, it was recommended that an Organic Act be provided for American Samoa and that United States citizenship be conferred upon the indigenous inhabitants thereof. The Navy Department has expressed concurrence in these recommendations of the civilian committee, and, jointly with the Department of Interior, has prepared suggested legislation to accomplish that end.

At the end of 1947 four bills had been introduced in the Congress of the United States for providing citizenship and an Organic Act for American Samoa. On Oct. 23, 1947 the General Assembly of the chiefs of American Samoa requested the continuation of the U. S. Navy as administering agency of a naval civil government and also requested a bicameral legislature for the island. The Annual Fono of American Samoa meeting in November endorsed the recommendations made by the General Assembly.

TRUST TERRITORY OF THE PACIFIC ISLANDS

By William E. Neely
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COMPOSITION OF THE TERRITORY

The Trust Territory of the Pacific Islands, consisting of those islands formerly mandated to Japan by the League of Nations, was granted to the United States in trust in 1947. The Trust Territory includes the Marshalls, the Carolines, and the Marianas (except Guam), some 2,146 islands, islets, atolls, and reefs located in mid-Pacific just north of the equator and extending 1,200 miles north to south and 2,500 miles east to west. The total land area of the Trust Territory is 715 statute square miles and the total over-all area of land and water is 3,121,722 nautical square miles. This area is sometimes referred to generally as "Micronesia" (small islands).

HISTORY

In the period of discovery, beginning early in the 16th century, the islands now included in the Trust Territory were visited by Spanish, German, Dutch, Portuguese and English explorers. At an early date, Spain established a firm control over the Marianas Islands. In 1886, the conflicting claims of Spain and Germany to the Marshalls and Carolines were resolved through the mediation of Pope Leo XIII pursuant to which Spain gained title to the Carolines and Germany secured undisputed control of the Marshalls. Following the Spanish-American War, Spain in 1899 sold the Carolines and the Marianas (except Guam which had been ceded to the United States in 1898) to Germany for 25,000,000 pesetos. The German rule over these islands was terminated in 1914 when the Japanese, not long after entering the First World War on the side of the Allied Powers, took possession. At the end of that war, Japan received a Class C mandate from the League of Nations over these islands. Soon thereafter the mandate was almost completely closed to non-Japanese visitors, and, as is now known, fortification of strategic islands was begun. In 1935, Japan withdrew from the League of Nations but did not relinquish control of the mandated territory. During the Second World War these islands and the surrounding waters became the scene of decisive naval and military operations. The names of such remote ramparts as Kwajalein, Eniwetok, Truk, Ulithi, Pelelieu, Saipan, and Tinian became world-famous. Beginning early in 1944, the islands either were wrested from Japanese control or were isolated from further effective participation in the war.

GOVERNMENT

From the termination of Japanese control until July 18, 1947 the islands comprising what is now the Trust Territory were under military government administered by the United

States Navy. On that date, military government was ended by the President's approval of the trusteeship agreement between the United States and the Security Council of the United Nations for the Trust Territory of the Pacific Islands (former Japanese mandate). By that agreement, among other provisions, the Trust Territory was designated as a strategic area; the United States was granted authority to fortify the area, to apply to the territory such laws of the United States as might be deemed appropriate, and to exercise veto power over any proposal to alter, amend or terminate the trusteeship agreement. In return the United States, among other particulars, bound herself to act in accordance with the Charter of the United Nations, to foster the development of self-government or independence in accordance with the wishes of the people concerned, and to promote the economic, social, educational and political welfare of the indigenous people. The President, also on July 18, 1947, by Executive Order 9875, delegated to the Secretary of the Navy the responsibility for the civil administration of the Trust Territory, on an interim basis and until such time as a civilian department or agency should be designated to have permanent supervision of the government of the area. Subsequently Admiral Louis E. Denfeld was commissioned as U. S. High Commissioner of the Trust Territory and Rear Admiral Carleton H. Wright appointed Deputy High Commissioner.

For reasons of logistics and communications the present seat of government for the Trust Territory is at Guam. The Trust Territory for purposes of administration has been divided into the following districts: Palau, Yap, Truk, Ponape, Majuro, Kwajalein, and Saipan. The government of the area is supervised by naval officers specially trained in island administration and by a small staff of civilian specialists in such fields as education, political science, economics, and agriculture. In so far as possible, consistent with the fundamental principles of democracy, the indigenous people of the islands have been encouraged to retain their traditional forms of government and to assume responsibility for conducting their own local affairs. Accordingly, local laws are enacted by village councils and enforced by local officials.

On each island having a significant population there is a court presided over by a local judge, having jurisdiction generally of misdemeanors and of civil cases involving not more than $100. Court decisions are reviewable by a representative of naval civil administration who periodically visits each island for the purpose of supervising and assisting the local people in the management of their government.

PEOPLE

The great majority of the indigenes of the Trust Territory are of the Micronesian race with a minority of Polynesians, who like the Micronesians, are of Asiatic origin. The natural loyalties in the islands of Micronesia at the present time are local rather than area-wide; there is similarity but not uniformity of local organization, social customs, and language throughout the whole of the area. The reported population for the Trust Territory, as of July 1, 1947, was 50,537. Population by districts is as follows: Palau, 6.014; Truk, 15,716; Yap, 4,546; Ponape, 8,914; Majuro, 3,610; Kwajalein, 6,766; Saipan, 5,550.

EDUCATION

In 1947, there were 122 public schools in the Trust Territory in which 270 teachers were employed and 8,943 pupils enrolled. Teacher training schools were conducted in each district with a total enrollment of 300 trainees. Instruction is offered in both English and the local language.

HEALTH

During 1947, a total of 73 dispensaries with a capacity of 337 beds were maintained in the Trust Territory for the use of the indigenous people.

More than 14,000 treatments were administered. Substantial progress in controlling yaws, tuberculosis, and internal parasites, the most prevalent ailments in the area, is reported. Schools for medical practitioners, dental practitioners, and nurses are maintained on Guam to which the best qualified candidates from the various islands are sent for training. A medical officer makes regular inspection trips to each island to administer treatments and to supervise the work of the local medical practitioner. Persons requiring hospitalization are transported to district headquarters or to Guam by ship.

PRODUCTION AND TRADE

The natural resources of the Trust Territory are meager, and for the most part the soil is unproductive. During the war, the economy of the islands was seriously disrupted. Coconut trees were devastated, and fish were driven from the lagoons by combat operations. Because of the remote location and distances involved in inter-island shipping, the problem of sea transportation is acute. An effort is being made to revitalize the island economy. Principal products for export are: copra (dried coconut), handicraft, trochus shells, and phosphate. Exports for 1947 were $500,000 (approximately) and imports $1,250,000 (approximately). From the time of the expulsion of the Japanese through 1947, trade in the islands was carried on mainly through the U. S. Commercial Company, an R. F. C. subsidiary. On Jan. 1, 1948, the U.S.C.C. was succeeded by the Island Trading Company of Micronesia, a Navy-sponsored public corporation, incorporated under the laws of Guam. It is the declared policy of the Island Trading Company to transfer trade operations to private enterprise as rapidly as the island people can assume this function.

ATOMIC DEVELOPMENTS

In 1946 the atomic bomb tests "Able" and "Baker" were conducted on Bikini Atoll in the Marshall group from which the 160 inhabitants had been removed to Rongerick atoll where they were resettled. On Dec. 2, 1947, the Atomic Energy Commission announced that Eniwetok atoll, also in the Marshalls, had been selected as a proving ground for routine experiments in atomic energy developments. Eniwetok was selected because of its isolation from other islands and because of the small number of island people involved (145). The inhabitants of Eniwetok have been resettled on Ujelang atoll.

SCIENTIFIC SURVEYS AND LEGISLATION

In November 1947, Yap atoll was swept by a typhoon which resulted in extensive property damage but no loss of life. Three scientific surveys were in progress in the Trust Territory at the end of 1947: of the people by the Coordinated Investigation of Micronesian Anthropology, a group of scientists from 21 different institutions in the United States and Hawaii; of the fishing resources of the area by the Fish and Wildlife Service of the Department of the Interior pursuant to Public Law 329 of the 80th Congress; and of the insect pests of the islands by the Insect Control Committee for Micronesia under the auspices of the Pacific Science Board of the National Research Council. Legislation to provide an Organic Act for the Trust Territory and to confer a local citizenship upon the indigenous people thereof is being prepared by the Department of State for submission to the Congress in 1948.

THE DISTRICT OF COLUMBIA

By W. Reed West
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TAXATION

Increase in salaries and contemplated engineering activities made necessary an increase in tax rates or the discovery of new sources of taxation for 1948. The District budget for 1948, therefore, calls for increased taxes (Public Law 195). The tax on real and tangible property has been increased from $1.75 to $2.00 per $100 of valuation. The gasoline tax is increased from three cents a gallon to four, and the annual motor vehicle inspection fee from 50 cents to $1.00. Water rents are increased by 25 per cent.

The House bill should have yielded a considerably increased return from the income tax. Exemptions of married couples were reduced from $2,500 to $2,000 although the credit for dependents was increased from $400 to $500. Of more importance was the definition of a "resident" as every person domiciled in the District of Columbia, or any person maintaining a place of abode there for seven months out of the year, except for elective Federal officers, and officers appointed by the President subject to Senate confirmation and whose tenure is subject to the pleasure of the President. Exception from double taxation was made for persons domiciled elsewhere. A large number of persons in the District are domiciled elsewhere and, therefore, in the past had claimed exemption from the income tax. The House bill would have collected an income tax from most of these. However, the Senate forced the House to recede. As the Act reads the tax on the Federal salary or income from without the District may be avoided by any Federal employee who declares himself to be domiciled outside the District.

On the other hand, an increase in District income has resulted from raising the Federal contribution for the support of the District Government. In 1947 the contribution was $6,000,000, 8.63 per cent of the total, the lowest percentage contribution made by the Federal Government to the District, at least in the last half century. Federal properties are exempt from District taxes and the District renders services to the Federal Government, such as the supplying of water. For 1948, the Federal contribution is raised to $12,000,000, of which $1,000,000 is to be credited to the water fund.

SCHOOLS

The salaries of teachers and administrators in the public schools were increased generally (Public Law 163). The range for teachers in the elementary schools, junior high schools, and senior high schools will be between $2,500 and $4,500. Recognition for the Master's degree in increased salary is now granted to the elementary teachers as well as to those on the high school level.

The Act of 1946, establishing nursery schools, was extended until June 30, 1948, with some minor changes (Public Law 123); and a change was made in the method of computing appropriations for the teachers retirement fund (Public Law 351).

There has been some criticism of the system of segregation between white and colored in the District school system. The President's Committee on Civil Rights made the charge that the Negro schools were inferior and pointed to overcrowding as compared with white schools. However, there is some evidence that the present situation is temporary and that attention to conditions in the Negro schools was, in fact, brought forth by the white school officials in an effort to obtain funds to remedy the situation. A proportion of Negroes are in old schools as a result of neighborhood changes in which white areas have become predominantly colored.

THE COURTS AND CORRECTION

The administration of parole was drastically changed. The old Board of Indeterminate Sentence and Parole was abolished and in its place was set up a board of three, one of whom is the Parole Executive, on a full-time basis. The other two serve without compensation. All are appointed by the Commissioners. The law is broadened to permit the Board to petition the court for a reduction in the minimum sentence where it is deemed advisable, and the jurisdiction of the Board also is extended to cover all sentences of more than 180 days (Public Law 198).

A recognition of alcoholism as a form of disease appears in an act (Public Law 347) establishing a clinic for the treatment of alcoholics. In criminal cases the Municipal Court is authorized to suspend proceedings and if it is found that the defendant is a chronic alcoholic, he is to be committed to the clinic for diagnosis. The director of the clinic may recommend that he be set at liberty conditionally, placed in a hospital or other agency for treatment, or returned to the court for trial on the original offense. There is provision also for the treatment of persons at their own request.

The power of the Juvenile Court to waive jurisdiction and permit trial in the regular courts in the past was limited to children of 16 or older. However, an atrocious crime occasionally is committed by a child below 16, and treatment of such a juvenile offender might not be complete before the age of 21, when he must be released. This defect in the law has now been corrected by permitting the Juvenile Court to waive jurisdiction in the case of any child charged with an offense which, if committed by an adult, would be punishable by death or life imprisonment (Public Law 53).

The act regulating the possession of dangerous weapons has been strengthened by permitting arrest without warrant, and search and seizure pursuant thereto, "as in the case of a felony," on probable cause, with the limitation that evidence discovered in such case shall not be admissible in a criminal proceeding unless the person arrested was carrying a dangerous weapon on or about his person (Public Law 344).

HOUSING AND INSURANCE

The licensing law in respect to public housing was improved by the grant of broader powers (Public Law 215). The old law had become obsolete in some respects, as, for instance, in reference to apartment houses containing single-room living units which were virtually unknown when the old law was enacted. The Emergency Rent Act was extended to March 31, 1948 (Public Law 309).

The insurance law was amended to correct a court decision affecting rights where the beneficiary predeceased the insured (Public Law 307).

UNDERTAKER LICENSING

Under the old law one could practice the business or profession of undertaker upon registering his name with the Health Department and without other proof of competence. A new licensing law lays down certain qualifications, including a high school education or its equivalent, graduation from a school of embalming in a course covering at least nine months, and two years of practical experience. In addition, the applicant must pass an examination (Public Law 308).

MISCELLANEOUS LEGISLATION

Corruption in connection with athletic contests was prohibited and made punishable (Public Law 179); the Commissioners were authorized to provide for daylight saving time for 1947 (Public Law 45); a minor change was made in the Unemployment Compensation Act (Public Law 252); compensation was provided for owners in condemnation proceedings that had been abandoned (Public Law

177); members of the police and fire departments who served in the armed forces were given certain seniority rights otherwise lost because of such service (Public Law 154); police, firemen and secret service men who served in the armed forces were given credit in connection with the policemen and firemen's relief fund (Public Law 205); and a number of minor acts were passed.

PROPOSED REORGANIZATION OF THE DISTRICT GOVERNMENT

Agitation for District suffrage has continued. A subcommittee of the House District Committee has completed a study of a proposed reorganization of the District Government with the thought of relieving Congress of some of its burden, creating a representative local government, and providing a more efficient government. Its report recommends a managerial form, with an elected council, but with the right of Congress to disapprove legislation or remove officials by concurrent resolution. The proposal has met with opposition in some quarters and apathy in others.

PART THREE

GOVERNMENTAL FUNCTIONS

DIVISION VII

PUBLIC FINANCE AND TAXATION

NATIONAL FINANCE AND THE PUBLIC DEBT

By William J. Carson
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GENERAL

National finance in fiscal and calendar 1947 continued to be dominated by the war and its aftermath. Approximately 85 per cent of Federal expenditures in fiscal 1947 directly reflected the costs of the war, the effects of the war, and efforts to prevent a future war: national defense, international affairs, veterans' benefits, interest on the public debt, and tax refunds. In fiscal 1948, it is estimated that the expenditures for these costs will approximate 80 per cent of total outlays. In his budget message to the Congress in January 1948, President Truman said the costs of these items would continue to bulk large in fiscal 1949, July 1, 1948-June 30, 1949, and would amount to 79 per cent of total expenditures in that year. On the basis of these developments the magnitude and composition of the Federal budget in the post-war years become still clearer. President Truman, in his budget message, noted that such a large proportion of expenditures in post-war years going to the costs of war "should be a sobering thought to all of us as we strive for the creation of lasting peace among the nations of the world."

Expenditures in fiscal 1947 declined still further from the levels of the war years to a total of $42,505,000,000. In fiscal 1948, they are estimated at $37,728,000,000. In fiscal 1946, they were $63,714,000,000 and in fiscal 1945 they were $100,398,000,000, the wartime peak. Receipts from taxation and other sources in fiscal 1947 were $43,259,000,000; in fiscal 1948, they are estimated at $45,210,000,000. The further reduction in expenditures in fiscal 1947 and the continuation of receipts from taxation at wartime levels resulted in a balanced Federal budget, with a small excess of receipts, for the first time since 1930. In fiscal 1948, it is estimated that receipts will be $7,482,000,000 larger than expenditures and make possible a substantial reduction in the Federal debt.

On June 30, 1947 the Federal debt was $258,286,000,000. This was a reduction of about $21,000,000,000 from the peak of $279,214,000,000 reached in February 1946. From July to December 1947, the debt was reduced still further to $256,900,000,000 on Dec. 31. Budget surpluses, estimated at $7,482,000,000 in fiscal 1948, will make possible still further reduction by June 30, 1948.

FEDERAL EXPENDITURES, FISCAL 1948

Total estimated expenditures for fiscal 1948 of $37,728,000,000 are approximately $4,777,000,000 smaller

TABLE I

FEDERAL EXPENDITURES

(millions of dollars)

Description	Actual Fiscal 1947	Estimated Fiscal 1948
National defense	14,280	10,746
Veterans' services and benefits	7,370	6,632
International affairs and finance	6,540	5,533
Social welfare, health, and security	1,379	1,960
Housing and community facilities	403	113
Education and general research	76	77
Agriculture and agricultural resources	1,248	614
Natural resources not primarily agricultural	628	1,179
Transportation and communication	587	1,563
Finance, commerce, and industry	237	372
Labor	120	97
General government	1,318	1,473
Interest on public debt	4,958	5,200
Refunds of receipts	2,897	2,049
Reserves for contingencies	—	120
Adjustment to daily Treasury statement basis	+464	—
Total Budget expenditures	42,505	37,728

than expenditures in fiscal 1947. The principal purposes for which expenditures of $37,728,000,000 in fiscal 1948 will be required and the amounts for the corresponding purposes in fiscal 1947 as reported by President Truman in his budget message are given in Table I.

Examination of the expenditures shows that the largest single items are:

TABLE II

MAJOR ITEMS OF EXPENDITURES, FISCAL 1948

(millions of dollars)

National defense	10,746
Veterans' services and benefits	6,632
International affairs and finance	5,533
Interest on public debt	5,200
Refunds of receipts	2,049
Total	30,160
Other activities	7,568
Total Budget expenditures	37,728

The item $10,746,000,000 for national defense includes outlays for Air, Army, Navy, and supporting defenses. Since the close of hostilities, expenditures for the armed services have been sharply reduced from the peak total of $84,530,000,000 in fiscal 1945. Nevertheless, national defense remains the largest single government program, constituting over 28 per cent of total budget expenditures. The enactment of the National Security Act of 1947 makes possible an integrated and balanced national defense program, and it is possible that some reductions in outlays for defense may result therefrom. The amount of these economies, however, has not thus far been determined. In his budget message, President Truman noted that the item of $11,025,000,000 for fiscal 1949 provides only for the minimum requirements of the National Military Establishment. "One basic element of a balanced national security program—universal training —," he said, "is still lacking."

The figure of $6,632,000,000 for veterans' services and benefits is to provide education and training, unemployment allowances, pensions, insurance, hospitals, and other services. This amount is $638,000,000 smaller than in fiscal 1947. In explanation of these outlays and their importance in the Federal budget, President Truman noted in his budget message that "during the past year about 900,000 World War II servicemen were returned to civilian life, increasing the number of World War II veterans to

14.7 million and the total veteran population to 18.6 million. Within a decade, veterans and their immediate dependents will constitute more than two-fifths of our entire population. Many of our veterans have rights under more than one provision of Federal law, and, although the readjustment program has now passed its peak, veterans' benefits will remain a large part of the Federal Budget for many years to come."

The item of $5,533,000,000 for international affairs and finances in fiscal 1948 includes outlays for reconstruction and stabilization, foreign relief, Philippine war damage and rehabilitation, membership in international organizations, and foreign relations programs of the Department of State. In 1947, expenditures for these purposes were $6,540,000,000. Smaller outlays in fiscal 1948 than in fiscal 1947 are due mainly to the fact that subscriptions to the International Bank and Fund were paid in fiscal 1947 and to sharply curtailed payments for foreign relief through UNRRA. Expenditures for the European recovery program, aid to Greece and Turkey, relief by the Army in occupied countries will be materially larger in fiscal 1948 than in fiscal 1947. These sums indicate in part the economic magnitude of the programs that have resulted because of the position in international affairs in which the United States finds itself as a consequence of the war.

Interest on the public debt is approximately $5,200,000,000. It represents a fixed obligation of the Federal Government, subject to change only as securities are retired or refunded and as interest rates are changed.

Refunds of receipts are expected to total $2,049,000,000 in fiscal 1948. The principal items included are corporate profits tax refunds and individual tax refunds. These are fixed obligations under present tax laws. In fiscal 1947, tax refunds were $2,897,000,000.

The remaining figure of $7,568,000,000 is to cover the outlays for social welfare, health and security, housing and community facilities, education and general research, agriculture and agricultural resources, natural resources not primarily agricultural, transportation and communication, services to finance, business, and labor, and general government functions and operations, and others. The total of these costs is approximately the same in fiscal 1948 as in fiscal 1947. Outlays for social welfare, health, and security, natural resources not primarily agricultural, transportation and communication, services to finance, commerce and industry, and for general government are larger in fiscal 1948 than in fiscal 1947, while those for the other items, particularly housing and community facilities, agriculture and agricultural resources, and services to labor, are smaller.

REVENUE AND TAXATION

Receipts from taxation and other sources during fiscal 1947 totaled $43,259,000,000. In fiscal 1948, they are estimated to increase to $45,210,000,000. Direct taxes on individuals are estimated at $22,793,000,000 in fiscal 1948, direct taxes on corporations at $9,548,000,000, and excise taxes at $7,320,000,000. The estimates for the current year, fiscal 1948, assume continuation of the present high levels of business activity and incomes, continued full employment, and stable prices close to the present level.

In his budget message, President Truman noted that receipts in fiscal 1949 "will decline from 1948 because of an estimated reduction of 2 billion dollars in miscellaneous receipts, most of which is due to a decline in receipts from sales of surplus property." Between fiscal 1947 and fiscal 1948, he said "revenues from corporations and individual income taxes combined increased by 5.5 billion dollars, more than offsetting the decline of 3.2 billion dollars in excess profits tax revenues. Between 1948 and 1949, revenues from the two types of income taxes will increase by an added 1.3 billion dollars. These increases are largely the result of inflation during the past 18 months, which has swelled corporation profits and ag-

TABLE III

FEDERAL RECEIPTS

(millions of dollars)

Description	Actual Fiscal 1947	Estimated Fiscal 1948
Direct taxes on individuals	20,408	22,793
Direct taxes on corporations	9,676	9,548
Excise taxes	7,270	7,320
Employment taxes	2,039	2,409
Customs	494	374
Miscellaneous receipts	4,831	4,373
Deduct: Appropriation to Federal old-age and survivors' insurance trust fund	1,459	1,627
Total Budget receipts	43,259	45,210

gregate personal incomes. Because the increase in tax collections lags behind the rise in profits and incomes, the 1948 increase in tax collections will be followed by a further rise in 1949."

Excise tax and employment tax receipts are estimated to be larger in fiscal 1948 than in fiscal 1947 as a result of continued high levels of production and income. Receipts from customs, however, are expected to be smaller in 1948 than in 1947. The international trade agreements which recently became effective may cause a further slight drop in 1949. The details of receipts and revenues are given in Table III.

SIZE AND DISTRIBUTION OF THE PUBLIC DEBT

At the end of February 1946, the Federal public debt was $279,214,000,000, the peak for the war period. By June 30, 1947, the total had declined to $258,286,000,000 and by Dec. 31, 1947, it had declined still further to a total of $256,900,000,000. The reduction from February 1946 to June 1947 was due mainly to the policy of the Treasury to use the large cash balance which had been built up in the closing months of calendar 1945 to retire the debt. The further reduction in July-December 1947 reflected the use of budget surplus to retire the debt. An estimated budget surplus of over $7,000,000,000 in fiscal 1948 will make possible still further reduction by June 30, 1948. Commenting on this policy of reduction in public debt, President Truman in his budget message said that "as long as employment and income continue at record levels—and especially while inflationary dangers threaten—we must make the most of our opportunity for debt retirement."

Table IV shows in detail the volume of the Federal debt on Feb. 28, 1946 when the peak was reached, on June 30, 1947 and on Dec. 31, 1947, and the composition of the debt on these dates by type of security.

Examination of Table IV shows that the reductions since February 1946 have occurred entirely in the marketable public issues, particularly in the certificates of indebtedness, Treasury notes, and Treasury bonds. As these issues were reduced, U. S. savings bonds and special issues increased in amount. This change in the composition of the debt is reflected in the holdings of the debt by different types of investors and investing institutions which are shown in Table V.

Between June 30, 1946 and June 30, 1947, the largest reductions were in the holdings of commercial banks, Federal reserve banks, business corporations and associations. Holdings of individuals and other investors were generally larger in 1947 than in 1946. This shift in the holdings of the public debt from banks to other investors reflects the policy of the Treasury to manage the public debt so as to cur-

TABLE IV

UNITED STATES GOVERNMENT DEBT, VOLUME AND KIND OF SECURITIES

(In millions of dollars)

	February 28, 1946	June 30, 1947	December 31, 1947
Marketable public issues			
Treasury bills	17,032	15,775	15,136
Certificates of indebtedness	41,413	25,296	21,220
Treasury notes	19,551	8,142	11,375
Treasury bonds	121,635	119,323	117,863
Total	199,810	168,702	165,758
Nonmarketable public issues			
U. S. savings bonds	48,692	51,367	52,053
Treasury tax and savings notes	8,043	5,560	5,384
Total	57,206	59,045	59,492
Special issues	20,897	27,366	28,955
Non-interest bearing debt	1,301	3,173	2,695
Fully guaranteed interest bearing securities	539	83	76
Total interest-bearing debt	277,912	255,113	254,205
Total gross direct debt	279,214	258,286	256,900

tail rather than encourage inflationary expansion.

In the "Review of the Month" in the *Federal Reserve Bulletin,* July 1947, the Board of Governors of the Federal Reserve System discuss the debt retirement program and the change in the ownership as follows:

"Growth in public debt brought about in the course of financing the war came to an end in February 1946 when gross debt stood at 279 billion dollars. Since then it has been reduced by 21 billion dollars to 258 billion on June 30, 1947. This change reflected a reduction in marketable debt of 31 billion dollars, offset in part by an increase of about 8 billion

TABLE V

OWNERSHIP OF UNITED STATES GOVERNMENT SECURITIES, DIRECT AND FULLY GUARANTEED

(In billions of dollars)

Holders of Securities	June 30, 1946	June 30, 1947
Banks		
Commercial banks	84,400	70,000
Federal reserve banks	23,783	21,872
Total	108,183	91,872
Non-bank investors		
Individuals	62,900	66,100
Insurance companies	25,300	25,000
Mutual savings banks	11,500	12,100
Other corporations and associations	25,200	20,100
State and local governments	6,500	7,100
U. S. government agencies and trust funds		
Special issues	22,332	27,366
Public issues	6,798	5,445
Total	160,395	163,325
Total interest bearing securities	268,578	255,197

in special issues to trust funds and in international obligations. An increase in savings bonds outstanding was about offset by a reduction in savings notes, but total marketable public issues increased by nearly 2 billion dollars over the sixteen-month period, reflecting the issuance of armed forces leave bonds.

"The debt retirement program in 1946, which reduced the marketable debt by 23 billion dollars from the February peak, was financed almost entirely by drawing on balances accumulated in the Victory Loan Drive. Funds raised in the Drive had been drawn in a considerable part from nonbank investors, although banks purchased outstanding issues during and after the Drive. Not only did the Victory Loan bring in funds in excess of the announced goal but also the budget position became more favorable in the spring of 1946; thus the large amount of funds obtained in the Drive was not needed for current expenditures and could be applied to payment of maturing debt. Considered in retrospect, the combined Victory Loan Drive and the subsequent retirement program was essentially a transfer in debt holdings. Long term debt was first placed largely with nonbank investors and the funds were used subsequently in main part to retire short-term issues held by the banks. . . .

"Changes in the distribution of holdings of United States Government securities since the spring of 1946 were influenced primarily by the retirement program. Commercial banks showed the largest decline in holdings; they accounted for half of the retired issues and in addition sold substantial amounts of securities in the market. Federal reserve holdings showed a slight decline; open market purchases did not quite offset redemptions. Holdings of nonbank investors also declined; reductions under the retirement program were offset only in small part by market purchases."

GOVERNMENT BOND PRICES AND YIELDS

Rates at which short term Treasury bills were issued continued through June 1947 at the same levels as in 1946. Beginning in July, however, rates increased and were twice as high in the second half of the year as in January-June 1947. Rates on medium term issues (3-5 year Treasury taxable notes) were somewhat

TABLE VI

AVERAGE YIELDS ON SHORT TERM OBLIGATIONS OF THE UNITED STATES GOVERNMENT

(Per cent per annum)

	1946		1947	
	New Issues of Treasury Bills	3–5 Year Taxable Notes	New Issues of Treasury Bills	3–5 Year Taxable Notes
January	.375	1.06	.376	1.26
February	.375	.99	.376	1.26
March	.375	.96	.376	1.24
April	.375	1.10	.376	1.24
May	.375	1.16	.376	1.27
June	.375	1.15	.376	1.29
July	.375	1.15	.703	1.33
August	.375	1.19	.748	1.31
September	.375	1.27	.804	1.28
October	.375	1.29	.857	1.35
November	.376	1.28	.932	1.47
December	.375	1.30	.950	1.54
Average	.375	1.16	.604	1.32

higher in January-June 1947 than in 1946 and increased still more in the second half of the year. Yields on long term taxable bonds, due in 15 years or over, continued in 1947 at about the same level as in 1946, averaging for the year 1947, 2.25 per cent as compared with 2.19 per cent in 1946.

Prices of Government bonds declined during the year from a high of 104.61 in March to 101.59 in December. The average for the year was slightly lower than the average for 1946.

Higher yields in 1947 than 1946 brought about a better adjustment between short- and long-term rates. However, by refunding long-term securities into short-term securities, the increase in the average interest rate paid by the Government on the market debt was minimized.

Tables VI, VII, and VIII show in detail the course of yields and prices by months in 1946 and 1947.

TABLE VII

AVERAGE YIELDS ON LONG-TERM UNITED STATES GOVERNMENT BONDS[1]

(Per cent per annum)

	1946	1947
January	2.21	2.21
February	2.12	2.21
March	2.09	2.19
April	2.08	2.19
May	2.19	2.19
June	2.16	2.22
July	2.18	2.25
August	2.23	2.24
September	2.28	2.24
October	2.26	2.27
November	2.25	2.36
December	2.24	2.39
Average	2.19	2.25

[1] Taxable bonds with maturities of 15 years and over.

TABLE VIII

UNITED STATES GOVERNMENT BOND PRICES[1]

(Monthly average of daily figures)

	1946	1947
January	104.59	104.32
February	106.03	104.35
March	106.46	104.61
April	106.61	104.57
May	104.82	104.48
June	105.28	104.08
July	104.87	103.75
August	104.11	103.89
September	103.25	103.95
October	103.58	103.44
November	103.71	102.11
December	103.87	103.59
Average	104.77	103.76

[1] Average of taxable bonds due or callable in 15 years and over.

SOUND DOMESTIC ECONOMY AND MEETING RESPONSIBILITIES IN INTERNATIONAL AFFAIRS THE DOMINANT PROBLEMS

The two major problems with which national finance was concerned in 1947 and will continue to be concerned in 1948 were summarized by President Truman in his budget message as the carrying out of the responsibilities of the international position in which the United States finds itself as a result of the war and maintaining a sound domestic economy. Since the end of the war inflationary expansion has been a dominant threat to the maintenance of a sound economy and continues to be a matter of major concern. In 1946 and 1947, no reduction in taxation, prompt debt retirement, and curtailment of Federal expenditures were recommended as steps to counteract inflationary expansion. In his 1948 budget message, the President again stresses these as essential steps to the maintenance of a sound domestic economy and to insure that the country's international responsibilities are carried out.

MUNICIPAL FINANCE

By H. K. Allen
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GENERAL

The highlights in Municipal finance for the year 1947 were a further increase in operating expenditures, continued low-level of tax delinquency, and marked increase in new bond issues. The increase in operating expenditures results from the higher cost of materials and supplies and salary increase. The increase in bond issues reflects the launching of postwar public works projects.

The most recent year for which the comprehensive statistics of the Bureau of the Census in final report form are available is for 1945.

While some of the absolute expenditures just noted may appear large, yet too great significance should not be attached to them. The size of an expenditure becomes intelligible in terms of service when one discovers the number among whom it is divided. The per capita expenditures of cities, both as a whole and for particular items have varied greatly from time to time, but the general tendency has been to increase. The latest year for which per capita figures are available is 1942. The following table shows the change in per capita expenditures for selected years:

MUNICIPAL EXPENDITURES

(000 omitted)

Operation and Maintenance, by Major Functions[1]

Year	Total	General Government	Public Safety	Health and Sanitation	Highways
1945	$1,964,048	$170,911	$484,687	$326,197	$153,417
1944	1,904,844	163,463	474,681	309,147	139,996
1942	1,546,634	125,903	358,937	137,228	93,512
1940	2,193,915	168,712	350,462	139,498	108,537
1938	2,167,459	163,089	346,168	136,956	111,979
1936	1,838,803	150,213	317,154	141,207	108,910
1934	1,744,975	135,766	298,758	134,296	111,306
1932	1,806,517	149,909	328,797	160,010	127,670
1929	1,730,288	140,521	339,816	174,858	147,375
1927	1,562,615	136,848	315,362	160,259	137,892
1924	1,287,484	111,856	259,275	130,388	109,807
1922	1,155,691	105,174	234,199	115,488	98,763
1919	697,319	72,585	146,763	75,847	65,003
1915	546,568	62,793	120,696	55,758	60,615
1911	452,899	53,766	106,120	45,691	52,214
1907	367,367	42,703	87,885	36,899	42,718
1903	278,173	30,842	71,020	25,807	34,208

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[1] Statistics for 1944 and 1945 are for all cities having a population over 25,000; statistics for 1932 to 1942 are for cities having a population over 100,000. All other data are for cities over 30,000. Because of some changes in the basis of classification, the figures for 1938, 1940, 1942, 1944, and 1945 are not strictly comparable with those for earlier years. In 1944 and 1945, expenditures for hospitals were included with those for health and sanitation. Beginning in 1937, the financial statistics of public-service enterprises were reported separately from those of general government.

Year	Charities, Hospitals, and Corrections	Schools	Libraries	Recreation	Miscellaneous
1945	$201,399	$456,544	$32,073	$82,479	$ 56,341
1944	204,788	453,384	30,226	74,908	54,251
1942	345,841	377,123[1]	21,339	55,737	31,014
1940	500,003	631,432	25,813	65,679	203,779
1938	508,134	625,032	25,519	64,946	185,637
1936	366,466	571,922	21,119	52,303	109,504
1934	345,214	526,864	20,271	48,306	124,194
1932	234,419	629,353	.....[1]	63,117	113,242
1929	116,147	622,587	23,029	61,863	94,091
1927	99,806	560,668	20,167	53,839	77,731
1924	79,239	475,725	15,782	41,819	63,590
1922	76,627	422,843	14,326	38,703	49,603
1919	53,262	216,701	9,079	24,204	33,870
1915	38,285	162,332	7,134	20,416	18,535
1911	30,647	127,604	5,939	17,114	13,801
1907	24,408	102,395	4,989	11,794	13,572
1903	18,280	80,853	4,067	7,457	5,634

[1] Expenditures for schools from 1942 to 1945 include those for city corporation only whereas data for earlier years include independent school districts. Expenditures for libraries and schools combined in 1932.

PER CAPITA EXPENDITURES

Year	Total	General Government	Public Safety	Health and Sanitation	Highways	Charities, Hospitals, and Corrections	EDUCATION		Recreation**	Miscellaneous*
							Schools*	Libraries**		
1942	$40.71	$3.31	$9.45	$3.61	$2.46	$ 9.10	$ 9.93	$.56	$1.47	$ .82
1940	57.75	4.44	9.22	3.67	2.86	13.16	16.62	.68	1.73	5.37
1938	57.36	4.32	9.16	3.62	2.96	13.45	16.54	.68	1.72	4.92
1936	48.83	3.99	8.43	3.75	2.89	9.73	15.19	.56	1.39	2.91
1934	46.43	3.61	7.95	3.57	2.97	9.18	14.56	...	1.29	3.30
1932	47.87	3.97	8.71	4.24	3.38	6.21	16.68	...	1.67	3.00
1929	43.45	3.66	8.46	4.33	3.70	2.78	16.14	.59	1.55	2.25
1927	40.77	3.46	8.13	4.13	3.60	2.49	15.08	.53	1.40	1.94
1924	35.61	3.01	7.10	3.55	3.07	2.08	13.52	.44	1.15	1.67
1922	33.15	2.94	6.66	3.25	2.87	2.08	12.50	.41	1.09	1.34
1919	21.63	2.22	4.53	2.34	2.04	1.59	6.88	.28	.74	1.01
1915	18.45	2.10	4.06	1.86	2.06	1.26	5.58	.24	.68	.61
1911	17.62	2.08	4.12	1.77	2.04	1.17	5.04	.23	.65	.53
1907	15.95	1.86	3.80	1.59	1.91	1.05	4.42	.21	.51	.59
1903	13.19	1.46	3.35	1.21	1.64	.86	3.86	.10	.35	.27

* Payment for pensions are included in column "Miscellaneous" for the years 1911 to 1927 inclusive; for the years 1903 to 1909 inclusive, they are included with expenses for police, fire, and school departments.

** Payments for expenses of art galleries and museums are included in column "Recreation" for the years 1911 to 1927 inclusive; for the years 1903 to 1909 inclusive, they are included with the expenses of libraries; expenditures for libraries and schools are combined for the years 1932 and 1934.

IMPORTANCE OF DIFFERENT MUNICIPAL EXPENDITURES

There is a wide difference in the importance attached to the different functions performed by municipalities. While over a period of years there has been some change in the relative importance of some of the items, it is interesting to note that expenditures for education, except for the last two years, were always larger than any other, and that the relative importance of this item up to 1932 tended to increase with the years. The most significant development in recent years, it will be noted, is the increase in expenditures for public safety. The following table shows the relative importance of the different services over a period of years:

PERCENTAGE OF EXPENDITURES FOR DIFFERENT FUNCTIONS

Year	General Government	Public Safety	Health and Sanitation*	Highways	Charities, Hospitals, and Corrections*	EDUCATION		Recreation	Miscellaneous
						Schools*	Libraries*		
1945	8.7	24.7	16.6	7.8	10.3	23.2	1.6	4.2	2.9
1944	8.6	25.0	16.2	7.3	10.8	23.8	1.6	3.9	2.8
1942	8.1	23.2	8.9	6.0	22.4	24.4	1.4	3.6	2.0
1940	7.7	16.0	6.3	4.9	22.7	28.8	1.2	3.0	9.4
1938	7.5	16.0	6.3	5.2	23.4	28.8	1.2	3.0	8.5
1936	8.2	17.2	7.7	5.9	19.9	31.1	1.1	2.8	6.0
1934	7.8	17.1	7.7	6.4	19.8	31.4	...	2.8	7.1
1932	8.3	18.2	8.9	7.1	13.0	34.8	...	3.5	6.3
1929	8.4	19.5	10.0	8.5	6.4	37.2	1.4	3.6	5.2
1927	8.5	20.0	10.1	8.8	6.6	37.0	1.3	3.4	4.8
1924	8.5	19.9	10.0	8.6	5.9	38.0	1.2	3.2	4.7
1922	8.9	20.1	9.8	8.7	6.3	37.7	1.2	3.3	4.0
1919	10.2	21.0	10.8	9.4	7.3	31.8	1.3	3.4	4.7
1915	11.4	22.0	10.1	11.2	6.8	30.2	1.3	3.7	3.3
1911	11.8	23.4	10.1	11.6	6.6	28.6	1.3	3.7	3.0
1907	11.7	23.8	9.9	12.0	6.6	27.7	1.3	3.2	3.6
1903	11.1	25.3	9.2	12.4	6.5	29.3	1.5	2.7	2.1

* Expenditures for hospitals are included with those for health and sanitation in 1944 and 1945. Percentages for schools and libraries combined for the years 1932 to 1935.

SOURCES OF REVENUE

Property Taxes.—The revenue of cities arises from a number of sources. In most cities more than 90 per cent of the funds which go into the general revenue fund come from the general property tax. This is a tax levied against real and personal property. In addition to the general property tax, the Census Bureau designates certain taxes as special property taxes. Such include taxes upon the capital stock of corporations, upon savings banks and other financial institutions, and upon insurance companies. Included in this, also would be taxes levied upon mortgages at time of recording, taxes upon incomes and estates, upon investments, and a wide range of specific taxes.

Poll and Business Taxes.—In many cities, also, some form of poll tax continues to be used, although such taxes are much less important than formerly. No generalization can be made as to method of levy since this varies greatly from city to city. In addition, business and non-business license taxes make up a large group of levies upon different types of business activities, some of which, of course, are levied primarily for regulative purposes. The latter include such levies as those upon dogs, dance halls, etc. Receipts from special assessments constitute an important item, but they do not enter the general revenue fund. In some places at a particular time, subventions and grants are an important source of income, while in some cities, also, the earnings from public enterprises are not unimportant. The relative importance of major sources of revenue over a period of years is shown in the following table:

VII. PUBLIC FINANCE AND TAXATION

PERCENTAGE OF RECEIPTS FROM DIFFERENT SOURCES OF REVENUE

Year	The General Property Tax	Other Taxes and Licenses	Special Assessments	Subventions, and Grants, Donations and Pension Assessments	Earnings of Public Service Enterprises[2]	Other Revenues
1945[1]	63.1	9.5	0.9	17.9	....	8.6
1944[1]	64.8	9.2	1.1	18.9	....	6.0
1942[1]	65.2	9.8	1.2	17.4	....	6.4
1940	63.4	7.7	1.0	18.3	....	9.6
1938	64.7	8.1	1.1	16.1	....	10.0
1936	59.7	7.9	1.6	14.3	10.4	6.1
1934	62.6	5.3	2.2	13.5	9.8	6.6
1932	66.2	4.7	3.9	8.5	9.3	7.4
1929	64.7	6.4	7.2	5.8	9.8	6.1
1927	66.1	5.7	7.7	4.9	9.6	6.2
1924	66.1	5.7	5.9	5.3	10.3	6.8
1922	66.9	5.2	4.8	5.9	9.0	8.2
1919	66.0	7.6	5.6	4.1	10.2	6.4
1915	62.4	7.8	8.5	4.2	10.0	6.9
1911	61.9	8.7	8.4	4.6	10.6	5.8
1907	59.4	10.6	8.2	4.8	11.2	5.8
1903	61.4	9.8	7.6	4.3	11.5	5.5

[1] For all cities having populations over 25,000. Statistics for 1932 to 1940 are for cities having a population over 100,000. For years prior to 1932, data are for cities over 30,000.

[2] Listed separately in years 1937 to 1945.

PER CAPITA TAX BURDEN

That the tax burden imposed by cities has been increasing much more rapidly than population is readily seen when one notes the change in the per capita amounts collected from different sources over a period of years. The latest year for which per capita figures are available is 1942.

PER CAPITA RECEIPTS FROM DIFFERENT SOURCES

Year	Total	The General Property Tax	Other Taxes and Licenses	Special Assessments	Subventions and Grants, Donations and Pension Assessments	Earnings of Public Service Enterprises[2]	Other Revenues
1942[1]	$49.79	$32.45	$4.89	$....	$ 8.65	$....	$3.80
1940	74.15	47.04	5.71	.71	13.52	....	7.17
1938	74.28	48.02	5.97	.82	11.99	....	7.48
1936	76.83	45.83	6.03	1.21	10.95	8.03	4.78
1934	72.13	45.17	3.77	1.61	9.71	7.09	4.78
1932	68.82	45.57	3.24	2.70	5.84	6.42	5.03
1929	69.63	45.07	4.43	5.01	4.02	6.82	4.28
1927	69.77	46.09	3.95	5.36	3.40	6.67	4.29
1924	58.41	38.59	3.33	3.43	3.12	6.00	3.96
1922	53.57	35.85	2.80	2.58	3.13	4.83	4.38
1919	35.26	23.29	2.68	1.98	1.43	3.61	2.27
1915	30.00	18.73	2.36	2.54	1.26	3.03	2.08
1911	28.07	17.37	2.44	2.35	1.50	2.98	1.63
1907	24.67	14.64	2.63	2.02	1.18	2.77	1.43
1903	21.14	12.98	2.06	1.60	.91	2.42	1.16

[1] For all cities having populations over 25,000. Statistics for 1932 to 1940 are for cities having a population over 100,000. For years prior to 1932, data are for cities over 30,000.

[2] Listed separately in years 1937 to 1942.

MUNICIPAL INDEBTEDNESS

Receipts from sources of revenue may either just pay expenses, more than pay expenses, or fail to pay them. In many cases, the administrators of the finances have planned for a surplus but because of a shrinkage in revenue have had to resort to borrowing.

In the calculations of the Census Bureau, municipal indebtedness is divided into two distinct groups, long-term obligations and short-term loans. The former includes all obligations which have a number of years to run and for the redemption of which no assets other than a sinking fund or earnings of public service enterprises have been specifically designated. The latter, on the other hand, includes such indebtedness as is evidenced by warrants, accounts payable, and other short-term obligations. The following table shows the net long-term indebtedness for certain years.

MUNICIPAL INDEBTEDNESS

(000 omitted)

Year	Net Long-Term Debt	
	Amount	Per Capita
1945[1]	$5,243,472	$.....[1]
1944[1]	5,379,680	.....[1]
1940	6,746,826	177.60
1938	6,470,850	171.23
1936	6,331,516	168.13
1934	6,380,478	169.76
1932	6,289,078	166.66
1930	5,967,563	153.02
1929	5,529,835	144.33
1927	4,943,507	134.27
1924	3,481,980	110.09
1922	3,280,645	97.57
1919	2,541,172	81.18
1915	2,245,906	77.86
1911	1,808,828	67.52
1907	1,808,878	56.04
1903	933,004	44.71

[1] For all cities having population of more than 25,000. Statistics for years 1932 to 1940 are for cities having a population over 100,000. For years prior to 1932, data are for cities over 30,000. Per capita figures not available for 1944 and 1945.

DEVELOPMENTS IN THE BOND MARKET

The aggregate disposals of long-term obligations by states and municipalities for the first ten months of each year for a series of years are shown in the accompanying table. Total issues for the months covered increased from $919,280,000 in 1946 to $2,068,002 in 1947.

MUNICIPAL BOND ISSUES

(000 omitted)

Year	Total First Ten Months	Year	Total First Ten Months
1947	$2,068,002	1929	$1,055,135
1946	919,280	1928	1,094,074
1945	671,251	1927	1,297,029
1944	641,779	1926	1,149,105
1943	380,990	1925	1,174,724
1942	488,415	1924	1,280,504
1941	823,115	1923	850,952
1940	954,593	1922	990,188
1939	956,386	1921	868,392
1938	800,606	1920	570,109
1937	769,778	1919	581,871
1936	955,500	1918	245,789
1935	973,869	1917	402,828
1934	725,660	1916	402,548
1933	392,580	1915	434,829
1932	701,938	1914	423,171
1931	1,156,129	1913	327,902
1930	1,211,857		

Source: *Commercial and Financial Chronicle.*

FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS

The table showing municipal bond issues does not include the extension grants made to municipalities for public-works projects by the Federal Emergency Administration of Public Works. This agency was created by the National Industrial Recovery Act which became effective June 16, 1933. Under Title II of this Act, authority was granted to the Administrator to furnish grants, not subject to repayment, for 30 per cent of the total expenditures incurred for the payment of labor and material costs on approved public-works projects. Moreover, the agency was authorized to accept 4 per cent general obligation or revenue bonds of the municipalities as security for the loan portion of the allotment. In 1934, Congress authorized the Reconstruction Finance Corporation to purchase marketable securities from the Public Works Administration and provided that moneys realized by the Public Works Administration from such sales might be used for making additional loans, but not grants, in aid of non-Federal public-works projects under Title II of the National Industrial Recovery Act.

In addition to the program of public works administered under Title II of the National Industrial Recovery Act, the Public Works Administration carried on a separate program pursuant to the Emergency Relief Appropriation Act of 1935. Under the latter act, the amount of the grant was fixed by Administrative determination at 45 per cent of the cost of the project, with a corresponding reduction in the amount to be furnished by the applicant. Provision was made under this act for the sale of bonds acquired as collateral for municipal loans either on the open market or to the Reconstruction Finance Corporation, the proceeds to be used only for the making of loans. In practice, the sales were confined to the Reconstruction Finance Corporation which, in turn, sold the securities on the open market.

TAX DELINQUENCY

Tax delinquency is a natural phenomenon of a business depression, and a rising trend of tax delinquency inevitably cripples municipal functions and weakens municipal credit. During periods of prosperity, on the other hand, tax delinquency drops sharply. Dun and Bradstreet has made a study of the trend of median year-end tax delinquency in 150 cities over 50,000 population for the 13-year period from 1930 to 1946. The following percentages show the median delinquency on the current tax levy at the end of each fiscal year:

1946......	3.20%	1937......	11.3%
1945......	3.30%	1936......	13.9%
1944......	3.90%	1935......	18.0%
1943......	4.70%	1934......	23.05%
1942......	6.00%	1933......	26.35%
1941......	6.80%	1932......	19.95%
1940......	8.70%	1931......	14.60%
1939......	9.25%	1930......	10.15%
1938......	10.7%		

These figures show a substantial gain in collections since 1933, and delinquency in 1946 was much lower than it was in 1930. Only fragmentary data are available for 1947, but it is believed that little change has occurred since 1946.

DEBT DEFAULTS

The *Bond Buyer* estimated, with certain reservations, that 116 cities and towns were in default on their bonds on Dec. 1, 1947. This represents a reduction from the previous year when 131 incorporated places were in default.

The following states, according to the *Bond Buyer,* had the largest number of defaults:

Florida.........	39	North Carolina..	9
Texas..........	15	Michigan.......	5
Pennsylvania...	9	Oklahoma.......	5
Colorado.......	9	Minnesota......	4

It is significant to note that Florida and North Carolina, which are included in the above group, had large increases in local indebtedness between 1912 and 1932, the percentages being 2,779.01 and 1,300.8, respectively. The indebtedness of Maine during the same period increased only 73.2 per cent, while that of Massachusetts increased only 99.2 per cent. Maine had one incorporated place in default in 1947, and Massachusetts had none.

While no data are available regarding the volume of municipal bonds in default, it can reasonably be stated that the volume of such defaults declined during 1947.

DEBT ADJUSTMENT LEGISLATION

For the purpose of aiding municipalities which are in default on their obligations, various states have recently passed state receivership and debt adjustment acts. Boards or commissions have been established to supervise local indebtedness in general, to supervise the refunding of municipal bonds, and to act as receivers in event of failure to meet debt service.

A Federal Municipal Bankruptcy Act was enacted May 24, 1934. This act, which was declared unconstitutional by the United States Supreme Court in May, 1936, was designed to enable any taxing district, with the consent of its creditors and the approval of a Federal District Court, to adjust its debt structure. According to the *Bond Buyer,* only 27 cities, one county, one school district, 41 irrigation districts, and one road district filed petitions under the Municipal Bankruptcy Act during the two years in which the law was in effect.

On Aug. 16, 1937, President Roosevelt signed a new Municipal Bankruptcy Act, designed to replace the original measure which was declared unconstitutional. The present law is similar in its provisions to the invalidated law. It provides a procedure whereby insolvent taxing agencies, such as local drainage, levee, irrigation, road, and sewer districts, as well as towns, boroughs, and municipalities, may effect compositions with their creditors. These compositions are approvable only when the districts or agencies file voluntary proceedings in bankruptcy accompanied by plans approved by 51 per cent of all the creditors of the district or town. The plan of composition can not be confirmed unless accepted in writing by creditors holding at least 66⅔ per cent of the aggregate amount of the indebtedness of the petitioning district or taxing agency, unless the judge is satisfied that the taxing district was authorized by law to carry out the plan and there had been a finding by the Court that the plan was fair, equitable, and for the best interests of the creditors. According to the *Bond Buyer,* 281 cases were filed under the 1937 Federal Municipal Bankruptcy Act prior to Dec. 1, 1947.

FEDERAL INCOME AND PROFITS TAXES

By Mark Carter Mills
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GENERAL

No changes in Federal income taxes were made in 1947. Two acts designed to reduce taxes on individual incomes were passed by the Congress; both were vetoed by President Truman. In each case the veto was sustained by a narrow margin. A long-range program of planning and research looking toward an eventual comprehensive revision of the Federal tax system was carried on by the Treasury. During the year there was much discussion of income tax revision both inside and outside Congress, and a number of tax programs were offered by different groups. The specific proposal most widely approved was that of permitting family incomes in all the states to be treated as they are now treated in the "community property" states.

Official discussion of tax revision began with the opening of Congress in January 1947. Chairman Knutson of the Ways and Means Committee promised an individual income tax cut of 20 per cent. President Truman, in his Budget Message of Jan. 3, 1947, announced that he was opposed to any income tax cuts in 1947. He said: "As long as business, employment, and national income remain high, we should maintain tax revenues at levels that will not only meet current expenditures but also leave a surplus for retirement of the public debt. There is no justification now for tax reduction."

To a considerable extent, the difference of opinion which characterized the discussion of tax revision throughout the year represented a clash of conflicting fiscal theories. Those holding what might be called an "incentive theory" were inclined to stress the necessity of reducing taxes in order to encourage saving and expanded production. In the main, this was the view of the majority party in Congress.

The contrasting or "purchasing power theory" held by the President and many of his advisors, was that a major function of government was to support consumer buying power. Such a theory of taxation logically leads to a policy designed to prevent too much saving by receivers of high individual incomes and to a reduction in rates on receivers of small incomes in order to equalize purchasing power. However, in view of the revenue needs of the Government and of disturbed world conditions, President Truman opposed any cuts in 1947.

TREASURY OBJECTIONS TO INCOME TAX REDUCTION

In appearing before the Ways and Means Committee of the House on March 13 and before the Senate Finance Committee on April 22, to present the views of the Treasury, Secretary Snyder opposed any income tax reduction in 1947, on three general grounds. In addition he offered certain specific and technical objections to the bill under consideration.

His first general objection was on the ground of general economic conditions. He did not believe that, in view of the existing business prosperity, tax reduction was either appropriate or necessary to secure continued high-level production. In addition, he believed that tax reduction in 1947 would intensify inflationary pressures.

Secretary Snyder's second objection concerned the budgetary situation. He argued that, in view of unforeseeable contingencies, it would be unwise to reduce revenues until expenditures were known. He further argued that tax rates should be maintained at a level sufficiently high to provide a budgetary surplus which could be used to reduce the national debt.

The Secretary's third general objection to tax reduction in 1947 was that a drastic reduction in revenue from individual income taxes might delay a comprehensive program of tax revision to come later. In this connection, he referred to the Treasury's long-range program of research looking toward an eventual comprehensive revision, not only of the individual income tax but of corporation, excise, estate, and gift taxes as well.

In specific criticism of H.R. 1, Secretary Snyder held that it was deficient from the standpoint of equity on the ground that it would reduce taxes on very high incomes proportionally much more than on lower and middle incomes. In addition to objecting to certain technical features, he stated that the bill, if passed, would complicate income tax administration and greatly increase its cost.

FEATURES OF THE INDIVIDUAL INCOME TAX REDUCTION ACT

The tax reduction bill (H.R. 1), as it emerged in final form, provided a general reduction of individual income tax rates and a special additional exemption for taxpayers over 65 years of age.

It was proposed that for taxpayers whose net income in excess of exemptions was $1,000 or less the tax payable should be reduced by 30 per cent and by an amount which under the "notch" provision would rapidly fall to 20 per cent at a net income of $1,396 after exemptions. For net income after exemptions between $1,396 and about $302,400 the reductions would have been 20 per cent. For higher incomes the reduction would have gradually tapered off to 10.5 per cent above $5,000,000. The bill proposed a special additional personal exemption of $500 for persons over 65 years of age.

The Tax Research Division of the Treasury estimated that, under the provisions of the bill, only about 1,100 taxpayers would have got less than a 20 per cent rate reduction. About 14,400,000 would have got a 20 per cent rate reduction. About 8,500,000 would have got between 20 and 30 per cent. The remaining 24,800,000 taxpayers at the bottom would have got 30 per cent rate reduction. Under the provision for a special additional exemption for persons over 65 years of age it was estimated that the additional exemption would have reduced the income tax of 2,800,000 persons over 65, of whom 825,000 would have become non-taxable.

On the basis of 1947 incomes, the Treasury estimated that the act would reduce Federal tax revenues by $3,769,000,000 for a full year. As finally voted by Congress, however, the reductions would have applied only to the second half of 1947, and 1948 would have been the first full year in which the reductions would have been effective.

PASSAGE AND VETO OF FIRST TAX REDUCTION ACT

After lengthy hearings and much discussion, the bill designated the Individual Income Tax Reduction Act of 1947 (H.R. 1) passed the House of Representatives on March 27 by a vote of 273 to 137. Forty Democrats voted with the Republican majority in favor of the bill and three Republicans and one member of the American Labor Party were included in the opposition. A similar bill passed the Senate on May 28 by a vote of 52 to 34. Seven Democrats joined 45 Republicans in favor of the bill and two Republicans voted with the 32 Democrats who opposed it.

The Conference Report went to vote in the House June 2 and was passed 220 to 99. The winning vote consisted of 183 Republicans and 37 Democrats, the opposition of 97 Democrats, one Republican, and one American Labor Party. The Senate acted the next day and passed the bill by a vote of 48 to 28, with 42 Republicans and six Democrats for the bill and two Republicans and 26 Democrats against it.

President Truman announced his veto of the tax reduction act June 16. In his veto message the President reiterated the stand against tax reduction taken in his budget message in January and characterized the act as providing the "wrong kind of tax reduction at the wrong time." Three principal points were made: (1) The country was still in a transition period in terms of national finances, and the situation called for "prudence and conservative management"; (2) the President stated that the economy was already subject to inflationary pressures, and tax reduction would tend to increase them; (3) if the integrity of the national debt is to be maintained, the debt must be reduced by substantial amounts.

The House of Representatives took final action on the vetoed bill the next day, June 17, and the veto was sustained. The roll call showed 268 voting to over-ride the veto with 137 voting to sustain it. Since a two-thirds vote was necessary to over-ride, the House action was final, and the bill was dead. Analysis of the vote on the veto showed that 35 Democrats had joined 233 Republicans in favor of over-riding while two Republicans and one member of the American Labor Party had voted with 134 Democrats to sustain the President's veto.

SECOND TAX REDUCTION ACT

The First Tax Reduction Act would have brought relief to all individual taxpayers effective July 1, 1947. The bill as reintroduced into the House to become the Second Tax Reduction Act was essentially the same except that the date of becoming effective was pushed forward to Jan. 1, 1948.

The second tax reduction bill passed the House on July 8 by a vote of 302 to 112. Two hundred and thirty-three Republicans and 69 Democrats voted for it, and 109 Democrats, two Republicans, and one member of the American Labor Party voted against it. The vote in the Senate came on July 14 and resulted in the passage of the bill by a vote of 60 to 32, with 48 Republicans and 12 Democrats voting for the bill and 30 Democrats and two Republicans voting against it.

President Truman's veto message was transmitted to Congress on July 18. In explaining his objections to the act the President said: "This is still the wrong kind of tax reduction and this is still the wrong time to provide for tax reduction." He repeated the objections which had led him to veto the first tax reduction act and more specifically stated: (1) That the act was not consistent with sound fiscal policy; (2) that if allowed to become law it would contribute to inflationary pressures; (3) that such an act would delay needed readjustments in prices; (4) that the act was unfair in that it would reduce taxes disproportionately more in high income brackets than in low.

Both the House and the Senate voted on the veto the same day the President's message was received. The House voted to over-ride 299 to 108, with 236 Republicans and 63 Democrats voting against the President and 105 Democrats, two Republicans, and one American Labor Party member voting to sustain the veto. In the Senate, however, the two-thirds vote necessary to over-ride the veto was lacking, the vote being 57 to 36, with 10 Democrats voting with 47 Republicans to over-ride the veto and three Republicans joining 33 Democrats to sustain.

CHAIRMAN KNUTSON'S NEW PROPOSAL

Chairman Knutson of the Ways and Means Committee introduced a new individual income tax reduction bill on Dec. 18, the day before adjournment of the special session called by President Truman to provide European emergency relief.

In many respects similar to the bills vetoed earlier, the new bill provided for raising the personal exemption from $500 to $600. It also called for a special additional exemption of $600 for persons over 65 years of age and for raising the present special exemption of blind persons from $500 to $600.

For persons with taxable incomes not exceeding $1,000 after exemptions, the reduction in rate would be 30 per cent. The reduction for those with taxable incomes between $1,000 and $1,396 would be on a sliding scale ranging from 30 to 20 per cent. On incomes between $1,396 and $4,000, the reduction would be 20 per cent. In the case of taxpayers with taxable incomes over $4,000 there would be a reduction of 20 per cent on the first $4,000 and a reduction of 10 per cent in the tax applicable to the remainder of their incomes. It was in respect to the reduction on incomes of over $4,000 that the bill differed most drastically from the earlier bills. In addition, the bill provided that the family income treatment now permitted in "community property" states be generalized to apply to all taxpayers.

Chairman Knutson proposed that his bill, if passed, should be made retroactive to Jan. 1, 1948 and estimated it would reduce Federal revenues by approximately $5,600,000,000.

It was not clear as the special session closed that Knutson's proposals would become the official Republican program when the new session opened in January. When asked to comment on the Knutson proposals in a press conference, President Truman reiterated his continued opposition to any income tax reduction in the near future.

PROPOSALS FOR COMPREHENSIVE TAX REVISION

Numerous proposals were made during the year regarding a comprehensive revision of the whole Federal tax system. Some of the proposals came from government officials and agencies and some from groups outside government circles. Among the non-governmental organizations offering plans were the National Association of Manufacturers and the Committee for Economic Development.

On May 19, the Treasury announced that the Tax Research Division had undertaken some 20 lines of investigation to provide the information needed for future legislation. Approximately half the studies undertaken by the Treasury were in the field of business taxation, the rest concerned with individual income taxes. Of those concerned with individual income taxation, the one arousing greatest popular interest was that of the treatment of family income, and on this the

Treasury issued a report on June 18.

The report made no policy recommendations but stressed the importance of the topic for early consideration by Congress. After reviewing the present situation under which married couples living in the so-called "community property" states are now permitted to divide their combined incomes equally between them in computing their income tax liability, regardless of the share actually earned by each spouse, the Treasury study pointed out: "Present law discriminates between families on the basis of residence, by enabling couples in community-property States to divide their earned investment community income between separate tax returns, thereby reducing their taxes through the double use of the lower rates of the progressive tax rate schedule. It discriminates also on the basis of the nature of income, by requiring earned income in noncommunity-property states to be taxed to the earner, but affording recipients of investment income numerous opportunities for splitting that income with members of their family. Finally, it discriminates between recipients of investment income by favoring families who avail themselves of opportunities to split income by gift and such devices as family trusts, corporations, and partnerships."

The study outlined possible lines of action and estimated that, if all families in the country were given the tax splitting privilege now enjoyed by those in the community property states, it would afford tax relief to some 5,000,000 families. For a family with taxable income of $5,000, the reduction would amount to 4.8 per cent. At $25,000, the maximum saving in taxes of 28.9 per cent would be reached. For couples with $1,000,000 of income the reduction would amount to 2.8 per cent. In general, if the proposal to permit income splitting were made nationwide, upper middle-class families with incomes from $10,000 to $100,000 would gain most.

In 1942, the Treasury proposed to remove the advantage enjoyed by the community property states by making joint returns mandatory for all couples. This recommendation was at that time voted down by Congress. So great was the popular interest in 1947 in generalizing the income splitting privilege that 22 bills proposing such a system were introduced during the first session of the 80th Congress.

The community property states prior to 1947 were: Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Oklahoma, Texas, Washington, and the Territory of Hawaii. In 1947 Michigan, Nebraska, Oregon, and Pennsylvania were added to the list.

The tax program of the Committee for Economic Development was contained in a statement issued Nov. 13, 1947 and entitled Taxes and the Budget: A Program for Prosperity in a Free Economy.

After discussing long-range problems of budgetary policy and the objectives of a tax program to be considered when the post-war picture becomes clearer, the committee made five specific proposals for 1948. These recommendations were: 1. Reduce the present initial rate on individual incomes (now 19 per cent on the first $2,000 of taxable income) to 15.2 per cent on the first $1,000 and 16.8 per cent on the second $1,000. Continue progression of marginal rates to reach 67.3 per cent at $100,000 and a top rate of 82 per cent at $1 million; 2. extend to married couples in all states the privilege of dividing their incomes, deductions, and exemptions equally between them; 3. eliminate excise taxes on communications and transportation; 4. make a start toward elimination of the double-tax on dividends; 5. lengthen the period for which business losses may be carried forward and applied against future profits from the present two years to five years; reduce the carry-back period from two years to one year.

CORPORATION TAXES

Congress made no attempt to change corporation income taxes in 1947. Extensive hearings were held with a view to possible action in 1948. Most popular attention was focused on the problem of taxing the now partially exempt cooperatives.

Long-range Treasury studies were carried on in a wide field of business taxation. Among the topics considered were: the general problem of the corporate tax rate structure, the taxation of dividends in the hands of stockholders, business loss offsets, and the special problems relating to depreciation in periods of rapidly changing prices. Other studies dealt with the elimination of discrimination among various forms of doing business, the problems of small business, and of American business abroad. Attention was also given to intercorporate problems arising out of business integration.

IMPORTANCE OF INCOME AND PROFITS TAXES

Total net budgetary receipts of the United States Government for the fiscal year 1947 amounted to $43,259,000,000 as compared with $43,037,000,000 in 1946. Total expenditures in 1947 amounted to $42,505,000,000, a decline of one-third from the expenditures of $63,714,000,000 during the preceding fiscal year and a decline of nearly 60 per cent from the wartime peak of $100,397,000,000 reached in 1945. For the first time since 1930, the Government ended the fiscal year with a budgetary surplus. It amounted to $754,000,000.

The major importance of income and profits taxes is shown by the fact that income from these sources amounted to $29,020,000,000 as compared with $31,258,000,000 in the fiscal year 1946. The principal decline occurred in corporation tax receipts as a result of the dropping of the corporation excess profits tax in the Revenue Act of 1945. The yield of income and profits taxes over a ten-year period is shown in the following table:

INCOME AND PROFITS TAXES 1938-1947

(in thousands of dollars)

Fiscal Year	Total Income and Profits Taxes	Individual	Corporation Income and Excess Profits	Miscellaneous Profits Taxes
1938	2,629,030	1,286,312	1,299,932	42,786
1939	2,185,114	1,028,834	1,122,541	33,740
1940	2,129,609	982,017	1,120,582	27,010
1941	3,471,124	1,417,655	2,016,297	37,172
1942	8,006,884	3,262,800	4,687,462	56,621
1943	16,298,888	6,629,932	9,584,715	84,241
1944	33,027,802	18,261,005	14,629,344	137,452
1945	35,061,526	19,034,313	15,883,235	143,978
1946	31,258,138	18,704,536	12,462,437	91,165
1947	29,020,054	19,343,297	9,621,274	55,483

LAND AND PROPERTY TAXES

By Carol Loucks

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GENERAL

Various aspects of land and property taxation received considerable attention from the 45 state legislatures which met in regular or special session during 1947.

Arkansas became the twentieth state to abandon the ad valorem tax for state purposes (Act 110). However, the state will continue to collect the tax through 1948. The Utah Tax Study Commission recommended that the property tax in the State General Fund be eliminated except in times of emergency and that the general property tax be reserved for the support of schools and local government.

Massachusetts (Ch. 522) amended the General Law to require the entire amount of city, town, and district taxes to be paid on July 1 rather than in two installments. This law will be applicable to taxes levied in 1948 and thereafter. The Kansas Legislature (S.B. 65) imposed a levy on all property in the state to pay the principal and interest on soldiers' compensation bonds.

ASSESSMENT

Assessment, particularly local assessment, was an object of attention. Iowa (S.B. 46) created the office of county assessor within the office of county auditor and provided for the establishment of county boards of review. The Iowa State Tax Commission was authorized (H.B. 62) to supervise the activity of all assessors and boards of review in the state. All property subject to taxation is required (H.B. 70) to be valued at its actual value and to be assessed at 60 per cent of such value. The Nevada Compiled Laws, Section 6546, were amended (Ch. 179) to empower the tax commission to appoint a chief valuation consultant whose duties will be to review local assessments, develop a standard assessment procedure, carry on a training program for county assessors and supervise assessment procedures.

Arizona (Ch. 48) authorized the state tax commission to institute and contract for a scientific survey of all real property and improvements situated in any city, town, or other municipal corporation or legal subdivision of the state. Pennsylvania (Act 447) created a state tax equalization board whose duty it is to determine the market value of taxable real property in each school district and to equalize such values throughout the commonwealth for use in determining subsidies to school districts.

During the 1947 legislative session, Oklahoma revised its assessment procedure (Ch. 1A) to require annual assessments of all property. In order to assist the assessors, the Oklahoma Tax Commission was given additional duties. Hereafter the commission is to confer with and assist the assessors so that assessments may be made relative, just, uniform, and at fair cash value. The commission will prescribe forms, including property classification and appraisal forms, for the use of the assessors; it will render technical assistance through appraisal engineers; it will provide schedules of value of personal property; it will prepare an assessor's manual; and it will conduct training schools, institutes, conferences, and meetings for the improvement of the qualifications of local assessors.

TAX LIMITATION

The attention given tax limitation by the legislatures in 1947 was devoted almost exclusively to amending existing statutes for the purpose of increasing the rate limit. Kansas made several adjustments in the rates governing city levies. In cities of more than 90,000 population the tax levies were consolidated (H.B. 92) so that the limit for the general operating fund is ten mills and that for the special contribution fund is three mills. Unless specifically exempted by law, the limit includes all citywide levies.

The levy limit for cities of the second class was increased from nine to 12 mills for 1947 and 1948 and thereafter is to remain at nine mills (S.B. 20). In cities of less than 50,000 population, the permissible levy for parks and fire departments was increased (S.B. 96), while the levy limit for police, fire, health, sanitation and highways was increased for cities of more than 115,000 population (S.B. 316). Minnesota (Ch. 268) increased the limit of the tax rate for carrying on governmental functions in all towns from three to five mills. North Dakota increased the tax levy limitation for general city purposes to 21 mills (S.B. 90). An additional one half mill may be levied for each 1,000 of population in excess of 5,000, but the maximum general levy may not exceed 28 mills.

The county tax limitation was increased from 11 to 18 mills (H.B. 78); the town limitation was increased from five to ten mills (S.B. 98); and the village limitation was increased from ten to 15 mills. South Dakota (H.B. 200) amended its statutes to increase from six to seven mills the maximum tax levy in counties having an assessed valuation of more than $30,000,000 and less than $50,000,000. The Missouri Revised Statutes, Sec. 11046 were amended (H.B. 77) by repealing the provision limiting increases in tax levies to no more than ten per cent of the levy for the previous year.

The 1947 Ohio Legislature allocated all the proceeds of the cigarette license money to the localities and increased the state subsidies and sales tax moneys returned to the localities. These additional moneys were allocated in an attempt to assist the local units hard pressed by the stringent, over-all tax limit in that state.

EXEMPTIONS

Veterans exemptions again received consideration. Indiana increased the exemption granted war veterans with a service connected disability of ten per cent or more from $1,000 to $2,000 (Ch. 352). Florida (S.B. 590) exempted all homes, clubhouses, hospitals, housing projects and other property owned and operated by nonprofit organizations of ex-servicemen from ad valorem taxes in all Florida counties of more than 300,000 population.

Massachusetts amended the General Laws to make the tax exemption previously granted to veterans applicable only to real estate rather than property in general (Ch. 612). The requirement that a claimant for exemption have a service connected disability of 20 per cent was reduced to ten per cent. The General Laws also were amended (Ch. 647) to increase the property tax exemption of veterans of the Civil War, the Spanish War, the Philippine Insurrection and the Chinese Relief Expedition, who otherwise are not entitled to relief, from $1,000 to $2,000. The exemption was made applicable to estates not exceeding $8,000 rather than the former $5,000.

Iowa (H.B. 1) exempted personnel serving in the armed forces from interest and penalties on delinquent property taxes due in 1946-1947. This state also provided (H.B. 76) for the establishment of a military service credit fund and for reimbursement to the local taxing districts of taxes levied upon property subject to military service tax credit.

In the field of homestead exemptions, the unusual housing situation received some recognition. Minnesota (Ch. 537) permitted homestead exemptions to be allowed on property purchased as a homestead but which can not be occupied because of Federal or state regulation.

The Alabama Legislature acted favorably on a constitutional amendment which would replace from the proceeds of the income tax the revenue lost to the state because of homestead exemption. All homesteads in the state are declared by the act to be exempt from all state ad valorem taxes to the extent of at least $2,000. South Carolina exempted from taxation all household goods and furniture used in the home of the owner.

New Jersey (Ch. 374) authorized housing authorities to make payments in lieu of taxes to municipalities, counties, the state, or any political subdivision. Pennsylvania began the process of amending the Constitution (Joint Resolution Act No. 3) so that the general Assembly may, by general laws, authorize agreements between redevelopment authorities and local authorities limiting for a period not to exceed 25 years the amount of annual taxes to be levied upon land acquired for urban redevelopment.

Indiana established a state fair board (Ch. 214), provided that all property held by the board for fairs and exhibits shall be exempt from taxation, and authorized an annual levy of 3½ mills on each $100 of taxable property for the support of the board. Montana granted a property tax exemption to municipal airports (Ch. 288) and authorized reciprocal exemptions with other states. Nevada limited the exemption granted United States property to that not taxable by Federal laws (Ch. 200).

An international note was struck when New York (Ch. 24) exempted from taxation the real property of the United Nations used for establishing headquarters for offices and places of assembly.

LEVIES

Property tax levies were imposed to obtain the revenue necessary to accomplish several objectives of school authorities. Indiana empowered township trustees and school boards to levy a tax of not to exceed 75 cents on each $100 of taxable property within the school district (Ch. 248). The proceeds of the tax, which may be levied for 12 years, are to be placed in a special fund for the erection of new school buildings and the remodeling of old. In South Dakota, school districts were granted the power (H.B. 40) to levy a tax of no more than three mills on the dollar of assessed valuation to create a school building fund. Oklahoma (H.J.R. 10) proposed a constitutional amendment which would permit an additional county levy to be used to purchase sites and erect separate school buildings for white and Negro children.

The Idaho Code was amended to increase the minimum levy for common school districts from four to five mills (Ch. 257) and a like increase was provided (Ch. 262) for rural high schools. Kansas increased the limit of the levy for education in cities of more than 115,000 population from 20 to 26 mills (H.B. 223). The independent school districts of South Dakota were authorized to levy a tax of no more than 40 mills in cases where the previously allowed rate of 25 mills was not sufficient for the operation of schools. Indiana (Ch. 232) increased the maximum levy for school purposes, for the special school fund and for the supplementary tuition fund so that the maximum levy for each is now $2 on each $100 of taxable property.

Montana also increased (Ch. 273) the levy which the county commissioners may impose for the support of the common schools to not less than six nor more than eight mills on the assessed value of all taxable property. Montana also permitted the county commissioners to levy a tax of no more than one mill on the dollar of assessed valuation, the proceeds to be used for the purposes of adult education.

LEVIES FOR SPECIAL PURPOSES

During 1947, numerous levies for special purposes were permitted by state legislatures. Colorado enacted a series of bills (H.B. 591, 592, 593, 595, 596, 609, 611, 612, 616, 617, 621, 622, 623, 624, 628, 629, 637, 653, 655, 656, 657, 658, 659) which imposed millage rates on all real and personal taxable property in the state. The taxes will be in effect for ten years and the proceeds will be used for the construction of state buildings. Iowa authorized (H.B. 35) a 20-year levy at the rate of one and one quarter to one and one half mills annually for the purpose of building or remodeling city or town halls. Iowa also permitted counties to levy an annual tax for the maintenance of structures built on lands under the jurisdiction of the county for purposes of flood or soil erosion control. Idaho increased (Ch. 155) the levy permitted for the support of junior colleges and repealed the law which permitted the levying by highway districts of a special tax for truck highways (S.B. 48).

Tax levies for the support of libraries increased during the year. Iowa established (S.B. 201) free public libraries for the use of rural inhabitants of counties; cities and towns in the county library districts created pursuant to this law are included in the tax levy. Kansas (H.B. 201 and 234, S.B. 245) permitted cities of the various classes to levy taxes for the support of public libraries. Tennessee also granted the power to levy county-wide taxes for the support of libraries (Ch. 148), but the proceeds must be divided with city libraries.

MISCELLANEOUS SPECIAL LEVIES

Other special levies were enacted for a variety of purposes. Indiana permitted county hospital authorities to levy a tax for building purposes (Ch. 362) and provided (Ch. 271) for the establishment of full-time county and multiple county health departments able to levy a one mill tax in excess of established tax limits. In counties of more than 150,000 population with an area of 5,000 square miles, Minnesota (Ch. 4) allowed a four-mill levy for tuberculosis hospitals. Colorado authorized a levy to establish and maintain county health departments (S.B. 83) and increased the maximum rate of cemetery districts (H.B. 146) to one and a half mills. Kansas granted townships the power to levy a tax for the maintenance of cemeteries (H.B. 31). Indiana county boards of commissioners may establish county park and recreation programs (Ch. 296) and levy a tax of no more than ten cents per $100 of taxable property for their support. Cities and towns in Iowa now may levy a tax (H.B. 102) for the maintenance and employment of a symphony orchestra.

COMMUNITY PROPERTY TAXES

Nebraska and Pennsylvania became the twelfth and thirteenth states to enact community property tax laws. The Nebraska Legislature (L.B. 410) passed a community property tax law which defines community property as property acquired by either husband or wife during marriage and after Sept. 7, 1947. Separate property, real or personal, of either husband or wife is excluded if it was owned or claimed before marriage or before the effective date of the act. Each is vested with an undivided half interest in the property. The husband and wife shall each be entitled to exemption under the existing laws. Unless otherwise proven, all debts contracted by husband or wife after marriage or after Sept. 7, 1947 shall be regarded as community debts. Only such community property where title exists shall be liable for debt.

Pennsylvania enacted a community property law which provided (Act 550) that all property acquired by husband or wife during marriage and after Sept. 1, 1947, except property acquired by gift, devise, descent, or as compensation for personal injuries, shall be the community property of husband or wife. Each was vested with an undivided half interest therein. As Pennsylvania levies no income tax and the Philadelphia income tax is on a different base, the object of the law was to assist Pennsylvania taxpayers with Federal income taxes.

The Bureau of Internal Revenue, to date, has approved all the state community property tax laws. The courts have not been quite so favorable. The Pennsylvania Supreme Court, in *Willcox v. The Penn Mutual Life Insurance Company,* declared the community property tax law unconstitutional on the grounds that, by making community property out of income from separate property, the law violated that portion of the Declaration of Rights of the Pennsylvania Constitution which relates to deprivation of property without due process of law. The court further stated that the law was so vague and inconsistent that it could not be enforced judicially.

CORPORATION AND BANK TAXES

By William A. Sharkey
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FEDERAL TAXATION

Despite the extensive efforts of many groups, no Federal legislation of general applicability was enacted with respect to corporations during 1947. There was considerable discussion in legislative committees, and several important studies were conducted by Federal agencies regarding both single-case revision of statutes and an overall revision of Federal corporate taxation. Occupying a position of prominence in most discussions was the issue of double taxation of corporate distributions. Most of the recommendations were made preparatory to the 1948 Congressional session. Actual developments in the Federal area were limited largely to administrative rulings and judicial opinion.

STATE CORPORATION TAXES

State activity in the corporate tax field showed considerably more activity in 1947 than in recent years. A number of the states have readjusted their corporate tax structures, with several upwardly revising rate schedules. A considerable revision of administrative machinery was effected, as well as complete rewriting of old statutes and the introduction of corporate taxes for the first time in certain jurisdictions.

ARIZONA

Among the new impositions is Arizona's gross receipts tax on utilities at the rate of 0.1 per cent up to $250,000 and 0.2 per cent above that amount of gross operating revenue. Receipts are earmarked to meet the administrative costs of utility regulation.

ARKANSAS

Subsequent to the *West Publishing Company* decision, Arkansas introduced a complementary corporation income tax similar to that of California, by which it subjects to taxation foreign corporations engaged in interstate commerce. The statute also provides for a 50 per cent ceiling on deductible Federal income taxes.

CALIFORNIA

Bank and corporation franchise taxpayers were granted a 15 per cent credit on tax based on years beginning before Jan. 1, 1949, and a like credit for corporation income taxpayers relative to years beginning before Jan. 1, 1948. The credit does not affect the minimum tax provision of $25.

COLORADO AND CONNECTICUT

In line with a revision of the state income tax law, Colorado corporations are now taxable at the rate of 5 per cent.

The general corporation income tax rate in Connecticut was increased from 2 per cent to 3 per cent with the provision that the 3 per cent rate be applicable to certain telephone companies. The alternative business corporation millage tax was increased from 1 to 1½ mills per $1 of assets, and the minimum tax increased from $10 to $15.

MARYLAND

A significant increase in the corporation net income tax occurred for tax years beginning Jan. 1, 1948, with a rate rise from 1½ per cent to 4 per cent. Deductions for contributions by corporations are now limited to 5 per cent of net income, rather than the 15 per cent formerly allowed.

MASSACHUSETTS AND MISSOURI

The corporation excise tax based on net income has been increased in

Massachusetts by an additional 1½ per cent imposition with respect to the calendar year 1948.

An additional new imposition was made in Missouri as a tax of 1 per cent of total receipts from car rentals by freight line companies was enacted in lieu of all *ad valorem* property taxation.

NEW JERSEY

A move towards simplification in reporting was provided with the introduction of a short-rate table for franchise tax computation for corporations having total assets of less than $100,000. The statute also provided that there shall be allocated to the state one-half of all intangibles of a domestic corporation having a business situs outside the state. A number of administrative changes were also provided in the statute, and special provisions were made relative to investment companies.

NEW YORK

A number of minor changes were effected with respect to corporation taxes in 1947. Among the pertinent statutes was one changing the provisions relative to interest and tax deductions in the determination of the franchise tax on business corporations. The same statute also provides for a change in the income-salary alternative method of tax computation. Another statute extended the filing time for review of corporation franchise tax liabilities as a result of the renegotiation of war contracts. It also provided for the prohibition against the inclusion of income gains or losses from subsidiary capital which do not include offsetting recoveries with regard to war losses.

In line with the inclusion of all temporary taxes within the permanent tax system, the emergency tax on utilities was made permanent at the prevailing 2 per cent rate. The enabling act authorizing cities to impose a 1 per cent utility gross income tax was continued to July 1, 1948.

NORTH CAROLINA, OHIO, OKLAHOMA

The rate of the franchise tax was decreased in North Carolina from $1.75 per $1,000 to $1.50 per $1,000 of capital stock, surplus and undivided profits.

The Ohio excise tax on utilities was extended to April 30, 1949.

The corporation income tax rate in Oklahoma was reduced from 6 per cent to 4 per cent, and similar reductions were effected with regard to national bank associations, state banks, trust companies, and other financial institutions.

PENNSYLVANIA

The corporation net income tax is continued at the 4 per cent rate for the years 1947 and 1948, and the same statute prohibits the deduction of net operating losses for years beginning in 1946. The 14-mill utility tax rate was continued for 1947 and 1948.

RHODE ISLAND

The state enacted a 4 per cent tax on the net income of business corporations for 1947 and 1948, or a tax at the rate of $.40 per $100 of corporate excess, whichever tax is greater. Corporations subject to the business corporation tax are required to pay only that amount by which the franchise tax exceeds the amount payable under the business corporation tax. The tax on electrical utilities was increased from 2 per cent to 2½ per cent of gross earnings, and the tax on communication companies was increased from 6 per cent to 7 per cent of gross earnings as of July 1, 1947.

VERMONT

The franchise tax measured by net income was increased from 2 per cent to 4 per cent with a minimum tax of $25, and certain administrative changes in the law were effected. A gross receipts tax on telephone companies was enacted at the rate of 4¼ per cent of entire gross operating revenues. A graduated alternative tax was provided.

BANK TAXATION

The basis for taxing savings banks in Maine was changed to $.30 per $1000 of average deposits during a six-month period.

A new tax was enacted in Missouri with respect to credit unions based on the taxable portion of dividends declared and credited to accounts of members. This levy is in lieu of general property taxation of such intangibles.

ESTATE AND INHERITANCE TAXES

By Mortimer M. Kassell
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DEATH TAX CONVENTIONS

The Treasury Department established regulations and procedures for the United States-United Kingdom Death Tax Convention, effective July 5, 1947 (Treasury Decision No. 5565).

STATE LEGISLATION

Since most of the state legislatures held sessions in 1947 there was a great deal of legislation, of which it will be possible to mention only a small part.

The question of community property received treatment in several states. California (Ch. 735) excluded from community property, intangibles acquired in another domicile. Idaho (Ch. 37) exempted from tax all transfers of community property to the surviving husband or wife. Utah (S.B. 109) excluded from the estate one-half of the value of jointly held property, not exceeding $40,000. Oklahoma eliminated the surviving spouse's share in community property from the gross estate (H.B. 178), and exempted the acquisition of community property by husband and wife from the gift tax.

In the interstate field, opposing trends were evident. Colorado (S.B. 232) exempted gifts made to foreign, charitable and non-profit institutions on a reciprocal basis. Indiana (Ch. 311) allowed exemptions of transfers to foreign corporations only where the foreign state has a reciprocal exemption statute, and restricted deductions for non-resident estates to taxes and other liens against property transferred (Ch. 182). Maine (Ch. 259) allowed the deduction of amounts paid on account of Federal estate taxes in resident estates.

Laws involving exemptions were enacted in California and Utah. California exempted property transferred to dependents of a decedent who died in service during the Second World War (Ch. 820). In Utah, property transferred to husband, wife, or children of the decedent was exempted from the tax in the first two brackets, up to $40,000 in amount (S.B. 108).

Emergency taxes were made permanent in New York (Ch. 89) and extended to July 1949 in Wisconsin (Ch. 329). Nebraska changed the rate of tax on certain classes (L.B. 174), and North Carolina made rates of gift tax dependent on the aggregate gifts made by a donor to the same donee.

Delaware (H.B. 65) and Maryland (Ch. 156) made provision for prorating estate taxes equitably among inheritors according to the proportion of property bequeathed in each case. Colorado (H.B. 255) and Nebraska (L.B. 171) required allocation of tax on jointly held property by dividing the value of the property by the number of joint tenants. The classes of donees were redefined for death tax purposes in California (Ch. 734, 735). North Dakota made taxable life insurance in excess of $25,000, no matter to whom payable (S.B. 120). North Carolina provided (H.B. 25) for a $2,000 insurance exemption in certain cases; Oklahoma required insurers to furnish information on policies owned by decedents (H.B. 178).

New York (Ch. 812) provided a 15-year statute of limitations with respect to the transfer tax on decedents who died prior to Sept. 1, 1930. South Dakota limited the time within which the inheritance tax remains alive to six years (S.B. 49). Oklahoma required assessment of inheritance tax within ten years from date of death (H.B. 160), and defined "fair cash market value" (H.B. 178).

FEDERAL TAXATION

Several studies of Federal taxes were made during 1947. The Advisory Committee of the United States Treasury Department proposed integration of death and income taxes, with a single transfer tax imposed at the time of transfer of property. The Special Tax Study Committee of the House Committee on Ways and Means, reporting in November 1947, made 13 recommendations, including Federal credit for state taxes computed on the present tax schedule instead of the 1926 schedule; amendment of the Federal law to provide that gifts made more than two years before death were not made in contemplation of death; equalization of taxes between community property and non-community property states by exempting one-half of gifts between husband and wife and all property left outright by one spouse to the other up to one-half of the estate; installment payment of the estate tax over a ten year period. The Committee on Postwar Tax Policy recommended the exclusion of life insurance from the gross estate.

There was little Congressional action with respect to the Federal estate tax. The United Nations was added to the list of agencies to which tax-free bequests and legacies may be made (Chap. 7, sec. 5). By Chapter 143, Public Law 112, the period for tax-free release of powers of appointment created on or before Oct. 21, 1942, was extended to July 1, 1948. The same act extended gift tax relief for certain discretionary trusts to Dec. 31, 1947. On Nov. 18, 1947, the President revoked the executive order of 1935 relating to the preparation and publicity of decisions concerning over-assessments of income, profits, and estate and gift taxes allowed in excess of $20,000 (No. 9906, 12 F.R. 7799).

A group of decisions by several United States Circuit Courts of Appeal continued to interpret the decision in *Helvering v. Hallock,* 309 U. S. 106 (*Commissioner v. Church's Estate,* 161 Fed. (2d) 11). The conflict as to whether there is a limit to the remoteness of a taxable possibility of reverter continued in Circut Courts of Appeal. *Commissioner v. Singer's Estate* (161 Fed. (2d) 15), and *Bankers Trust Co. v. Higgins* (158 Fed. (2d) 957) held there was a limit. See, also, *Collins v. Commissioner* (164 Fed. (2d) 276). A tendency to apply the *Hallock* rule not only to irrevocable transfers but also to revocable transfers is seen in *Trust Company of Georgia v. Allen* (164 Fed. (2d) 438).

The question of whether powers reserved by settlors of pre-1936 trusts were powers "to alter, amend or revoke" was considered in a number of cases (*Hurd v. Commissioner,* 160 Fed. (2d) 610; *Theopold v. United States,* 164 Fed. (2d) 404; *Jennings v. Smith,* 161 Fed. (2d) 74; *Thorp v. Commissioner,* United States Circuit Court of Appeals, Third Circuit, Dec. 2, 1947).

AUTOMOBILE TAXES

By MILDRED GUFFIN
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GENERAL

An important factor in the automobile tax situation in 1947 was the need for increased revenues. Almost all of the governors' messages to the state legislatures in session gave some attention to highway expenditures made imperative by war-time neglect. California's Governor Warren called the "outgrown highway system" a "tragic situation," and asked for an increase in the gasoline tax to improve the system.

Even without any addition to tax rates, the mounting consumption of gasoline and registrations of motor vehicles produced higher revenues. Startling increases, even over pre-war figures, were recorded. The national consumption of gasoline for highway use was more than 11 per cent greater in the first six months of 1947 than during the same period in 1946. The Public Roads Administration gives a preliminary figure for 1947 motor vehicle registrations of 37,164,405. In 1946, registrations were 33,945,817, and the previous record registration was 34,472,145 in 1941.

State receipts from both gasoline and automobile taxes in 1946 were higher than the pre-war figure in 1941, as well as higher than the previous year. Average state taxes per vehicle (combined automobile and gasoline) were $47.61 for the United States as a whole, and ranged from a low of $28.04 in Missouri to a high of $86.01 in Florida. The total was $1,333,561,000, constituting the largest state source of revenue, 27.3 per cent of total state collections. The latest available data for fiscal 1947 ending June 30 show total receipts of $1,664,000,000, which is 28.7 per cent of total collections (preliminary U. S. Census Bureau data).

Federal taxes were also correspondingly larger in 1946 and 1947 than in war years. Preliminary figures for the first eight months of the calendar year 1947 show receipts 41 per cent higher in 1947 than in 1946, with comparative totals of $742,000,000 in 1947 and $536,000,000 in 1946. Total collections for fiscal years ended June 30, 1946 and 1947 were $861,078,028 and $1,074,601,471, respectively.

There has been a great deal of agitation for repeal of the Federal excise taxes. Testimony was presented during the summer before the House Ways and Means Committee, but no action was taken. Even the Treasury Department, in its study, "Federal-State Tax Coordination," granted that the Federal Government might give up its gasoline tax, introduced as a temporary depression measure in 1932. Federal gasoline taxes are less than 1 per cent of total Federal revenue collections, while state gasoline taxes formed 18 per cent of total state collections in 1946.

PROTESTS AGAINST STATE POLICIES

Two state policies also evoked many protests—the extension of toll roads and the use of automobile tax receipts for non-highway expenditures. Laws for state toll projects were enacted in California, Colorado, Georgia, New Hampshire, Oklahoma, and West Virginia. The New York State legislature granted permission to Westchester County to collect 10¢ tolls on two previously free parkways. Revenues from all toll projects have been unexpectedly high; a sample survey indicates that 1947 exceeded 1946 by 10 to 25 per cent.

Although the percentage of state automobile and gasoline tax receipts devoted to non-highway purposes decreased from 15 per cent in 1941 to 6 per cent in 1946, legislation was introduced to forbid diversion in 12 states in 1947, and passed in Illinois, Florida, Massachusetts, Ohio, and Tennessee. The Illinois bill, which was not a constitutional amendment, became effective upon signature by the governor. In Ohio, the proposed amendment was approved by the voters in the November 1947 election. The Florida, Massachusetts, and Pennsylvania amendments will be voted on in 1948.

MOTOR FUEL TAXES

Gasoline tax rates were increased in eight states. Vermont raised its rate ½¢; the District of Columbia, Connecticut, Maryland and Rhode Island added 1¢; California 1½¢; Colorado and Maine 2¢. In New York, the two temporary emergency taxes of 1¢ each were made permanent. Temporary or emergency taxes due to expire in 1947 were extended in five states—Florida, Idaho, Ohio, Pennsylvania, and West Virginia.

Massachusetts included diesel fuel in its gasoline excise tax. Other states that passed legislation on diesel fuel were Idaho, Indiana, Michigan, and Pennsylvania. Idaho and Pennsylvania enacted new use fuel taxes at the same rate as their gasoline taxes. Michigan, which previously taxed diesel fuel under the gasoline tax, imposed a special use fuel tax of 5¢ per gallon, which is 2¢ higher than the gasoline tax rate.

The problem of tax evasion came up in Kansas, where a study indicated at least a 10 per cent loss through direct exemption of gasoline. Only Kansas and Oklahoma collect no tax on exempt gasoline; the other states provide for initial payment of all taxes, with subsequent refunds for exempt fuel. On the basis of the first six months' receipts, North Dakota's change from the exemption to the refund system is expected to gain nearly $1,000,000 in taxes in 1947.

Following the current trend toward permissive local taxes, Nevada authorized a 1½¢ increase to be used for county and city public roads. Twelve counties out of the 17 have voted against this increase.

MOTOR VEHICLE TAXATION

In California, more than 200 changes were made in the vehicle code, effective Sept. 19, 1947, among them increases in automobile registration fees from $3 to $6 and in commercial carrier fees based on weight. Colorado established new registration fees of $2 and $4 for trailers. In Maine, trucks must now be registered by gross weight instead of rated capacity; fees are graduated from $15 to $350. A new road tax on carriers similar to the Virginia law held constitutional in *Mason & Dixon Lines, Inc. v. Commonwealth of Virginia,* was also enacted, based on the amount of fuel consumed within the state. Carriers using more than the amount purchased within the state of Maine must pay a tax on the difference.

Several changes were made in Maryland. Passenger car registration fees of $15 and $23, based on shipping weight, were substituted for fees based on horsepower. The basis of truck fees was changed from chassis weight to a combination of chassis and gross weight, with fees graduated from $15 to $200. There are also new fees for trailers and semi-trailers, graduated from $5 to $200. The special fee per passenger mile for buses has been reduced, and the regular fees, based on seating capacity, now run from $75 to $150 per year.

Minnesota has a new schedule of registration fees graduated according to weight instead of valuation percentage, from $11 to $15, reduced 10 per cent the second year and 15 per cent each year thereafter. In North Carolina passenger car fees have been changed from $.35 per hundredweight to a fixed schedule graduated from $10 to $15. Beginning Jan. 1, 1949, Missouri registrations will be staggered, part expiring each month through the year.

North Dakota has increased its passenger car and truck fees by about 25 per cent for the first year of registration and reduced the fees by about 5 per cent for each subsequent year of registration.

The fees for heavier carriers in South Dakota have been increased about 15 per cent, rising to $525, and the fees for lower weights have been decreased to $3. Passenger carrier rates have also been lowered.

Vermont has increased its registration fees for passenger cars of 1937 or later vintage from $18 to $25. Fees for trucks now range from $.65 to $.95 per hundredweight.

Wisconsin, the tenth state to establish a flat fee, set $16 for all passenger cars regardless of size, age, and weight, but older cars previously subject to reduced fees will continue to receive a 25 per cent reduction until they are junked.

Progress continues in reciprocal arrangements between the states, with new laws in Connecticut, Georgia, Maine, Montana, New Mexico, North Dakota, Texas, Vermont, West Virginia, and Wisconsin.

New York State responded to city and county pleas for more state aid by authorizing municipalities to impose use taxes of $5 and $10 on passenger cars, depending on weight, and $10 on commercial vehicles. No county has yet taken advantage of the authorization.

OPERATOR'S LICENSES

Changes in operator's license laws include doubling the rate in Arkansas (50¢ to $1), amendments in Montana, and a complete new act in Wyoming, with rates of $1 for the operator's license for three years and for the chauffeur's license for one year. Beginning Jan. 1, 1948, California charges $2 for a driver's or chauffeur's license. Idaho and Indiana have staggered expiration dates of operator's and chauffeur's licenses by providing they shall expire every two years in the birthday month of the holder, and Colorado put the date every third year on the operator's birthday.

South Dakota achieved wide notice as the only state without a driver's license law; its governor has expressed concern, and a bill was introduced in the 1947 legislature, but failed to pass. A Federal bill to license drivers introduced in the House of Representatives never passed out of committee.

FINANCIAL RESPONSIBILITY

Financial responsibility laws substantially in accordance with the uniform code were adopted for the first time in Arkansas, Florida, New Mexico, and Wyoming. Amendments to make the laws correspond more closely to the uniform code were enacted in California, Connecticut, Idaho, Iowa, North Carolina, North Dakota, Maine, and Vermont. Colorado has a new law applying to nonresidents as well as residents. Proposals for compulsory insurance were introduced in several states but failed to pass.

PERIODICAL PUBLICATIONS

American Economic Review
Northwestern Univ., Evanston, Ill.

Annals, The
American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia.

Business Week
330 West 42nd Street, New York City.

Commercial and Financial Chronicle
25 Park Place, New York City.

Journal of Political Economy
5750 Ellis Ave., Chicago.

Nation's Business
Chamber of Commerce of the United States, 1615 H St., N. W., Washington, D. C.

Tax Administrators News
1313 E. 60th St., Chicago, Ill.

Tax Digest
15 East 26th Street, New York City.

Tax Magazine
350 Fifth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia.

American Taxpayers' League, Munsey Bldg., Washington, D. C.

Federation of Tax Administrators, 1313 E. 60th St., Chicago, Ill.

Institute of Local and State Government, University of Pennsylvania, Philadelphia.

National Assn. of Assessing Officers, 1313 E. 60th St., Chicago, Ill.

National Highways Assn., Bass River, Cape Cod, Mass.

New England State Tax Officials Association, Room 236, State House, Boston, Mass.

Research Institute of America, Inc., The, 292 Madison Ave., New York City.

Tax Institute, 150 Nassau St., New York City.

DIVISION VIII

PUBLIC RESOURCES AND UTILITIES

FEDERAL SURVEYS AND MAPS

By J. O. Kilmartin
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GENERAL

During 1947, the Federal surveying and mapping agencies mainly devoted their efforts toward mapping needed for the post-war development of the United States and its territories and possessions. The great demands made on this country to supply all kinds of materials to the war-stricken countries; the augmented need for products from our natural resources such as timber, oil, minerals, metals, and food to support our own economy; and the focusing of attention on the relatively undeveloped areas in the West as the only remaining fields for orderly expansion, all combined to give fresh and heavy impetus to the demand for maps to serve not only current needs but also as a basis for long-range planning. More and more, mapping needs were analyzed in joint studies between Federal agencies and state governments with due consideration also given to the interests of industry and the public. Consequently, activities of map-producing agencies were, to the greatest extent possible, correlated concurrently toward meeting present primary objectives and also to dovetail into the comprehensive program for completing the mapping of the whole country.

Major efforts continued to be directed toward surveying and mapping the principal river basins of the West such as the Missouri, Columbia, and others. Alaska was given a full share of thought and attention with the result that a very substantial program is contemplated and partly under way. In addition, numerous mapping projects were in progress in states in the eastern and central parts of the United States, and as a corollary activity, vast areas all over the country were photographed from the air.

However, in terms of complete topographic mapping of the continental United States, the present rate of progress would require the next 40 or 50 years, and during that time many of the maps would require at least partial revision. Consequently, for the country to be adequately mapped within a reasonable period and for the maps to be adequately maintained, the present rate of operations should at least be doubled. The Geological Survey is continually supporting this objective in order that our map status may fulfill minimum needs and be comparable to that of other leading nations of the world.

In the field of military mapping, efforts continued to be directed along two lines of equal importance. The first was the continuing preparation and maintenance of such maps and charts of both domestic and foreign areas as are considered necessary in the defensive interests of the United States. The second relates to the never-ending research and development of new instruments, techniques, and scientific discoveries for application to geodetic, hydrographic, and reconnaissance surveys and to navigation. Major accomplishments were achieved in both of these fields, and, in the latter, civilian agencies remained alert to apply promising developments to their surveying and mapping procedures.

SURVEYING AND MAPPING AGENCIES

The surveying and mapping activities of the Federal Government cover a very broad scope, and include geodetic, geologic, hydrographic, topographic, cadastral, soil, and many other types of surveys as well as map compilation involving innumerable subjects and purposes for both military and civilian use.

It is the responsibility of the Bureau of the Budget, in the Executive Office of the President, to coordinate and promote the improvement of the surveying and mapping activities of the Government. For example, representatives appointed by the principal Federal departments and establishments that are important users of topographic maps, provide the Bureau with annual priority statements in graphic form indicating their mapping needs. Four classes of priority are indicated along with the requirements as to map scales. State Planning agencies also submit similar statements showing their mapping needs. These expressed consumer needs are analyzed and, with assistance from the principal map producers, an overall mapping program is developed.

After appropriations have been made by Congress, the Bureau assists the map and chart producing agencies in preparing their revised schedules of operations, and these schedules are carefully reviewed so that duplications and gaps may be eliminated. Each map producing agency submits to the Bureau quarterly reports, graphic and tabular, showing progress of operations. Quarterly cost reports on map and chart production including their reproduction, are also submitted by each agency. These reports are analyzed and the map producers are given the benefit of this analysis so that they may effect economies and improve upon methods and operating procedures. The Bureau advises and assists the mapping and charting agencies in the technical aspects of their operations, and guides them in carrying out cooperative activities. Also it encourages the investigation of new methods and instruments and the adoption of any innovations offering advantages in efficiency, accomplishment, or economy.

The accomplishments of the various producing agencies as well as those whose main interest is in map research and the maintenance of important map libraries, are presented in the statements that follow. They have been arranged in alphabetical order, on an agency basis. Except in the case of independent bureaus which have no connection with departments, the parent department is indicated after the agency name by means of a capital letter in parenthesis, thus: (A)—Agriculture; (I)—Interior; etc.

AERONAUTICAL CHART SERVICE (N.D.—AIR)

The Aeronautical Chart Service is responsible for providing maps and charts of foreign areas required by the Air Force and civilian aviation agencies of the United States. This responsibility entails the procurement and collection, cataloging and storage, and supply and distribution of all types of foreign and domestic aeronautical charts. Procurement may include either the purchase or exchange of maps and charts produced by other domestic or foreign mapping agencies or the original compilation and reproduction of aeronautical charts or special maps required by the Air Force.

Three series of charts each provide coverage for the entire land area of the world. The series designated as Planning Charts consists of 43 sheets at the scale 1:5,000,000. The group of Long Range Navigation Charts includes 76 sheets at the scale 1:3,000,000. The series designated as World Aeronautical Charts, scale 1:1,000,000, consists of 896 sheets, of which 838 are of foreign areas and 58 cover the United States and its possessions. In addition to these, numerous flight charts, special maps and charts, and aeronautical publications are required by the Air Force and civil aviation.

During the year, approximately 1,200,000 square miles of trimetrogon aerial photography was used in the revision and recompilation of the World Aeronautical Chart series. Present plans provide that an equal, or greater, amount of coverage will be compiled during the coming year.

The 1948 program will include the preparation of a special series of charts of the north polar area. This group, consisting of eight charts, will be known as the Polar Navigation Chart series.

The production for distribution by this service during 1947 reached a grand total of 8,452,672 copies of maps, charts, and special publications.

ARMY MAP SERVICE (N.D.—ARMY)

The Army Map Service of the Corps of Engineers is responsible under the Direction of the Chief of Engineers for providing maps required by the Department of the Army. During periods of hostilities this responsibility is divided between the Army Map Service and theater commanders working on a coordinated program. Responsibilities of the Map Service include the compilation of operational and training maps and photomaps, reproduction of maps and related material, preparation of terrain models required for military training and operations, maintenance of the Department of the Army Map Library, issuance of maps for military purposes, investigation of new and improved cartographic techniques which are applicable to military mapping, and the maintenance of files of worldwide geodetic data.

During the year, 2,850 new and revised maps were prepared and over 14,030,850 copies were reproduced. Preparation was started on 4,040 basic maps. The Library acquired about 150,000 new maps and over 9,000 books and documents related to maps and mapping. The total holdings of the Library now exceeds 1,000,000 separate items.

In its present activities, the Army Map Service is concentrating on the expansion of its Library to provide topographic maps, geodetic data, and related mapping intelligence which would serve as compilation source material for Department of the Army maps; the preparation of operational, strategic, and planning maps of foreign and domestic areas; the preparation of such terrain models as are required by the Department of the Army; and large scale maps required for civil works activities of the Corps of Engineers. Of particular interest in domestic operations is the preparation of a scale 1:250,000 strategic map in 469 sheets covering the entire United States. Seventeen of these maps were published in 1947 and 228 additional sheets were started.

The depository program inaugurated in 1945, whereby copies of Map Service Library holdings are made available to universities and scientific institutions, continues to operate with increased popularity with these institutions.

BOARD ON GEOGRAPHIC NAMES (I)

On July 25, 1947, the President approved legislation, P.L. 242, that authorized the geographic names work long carried on under Executive Orders. The act abolished the United States Board on Geographical Names and created a new Board on Geographic Names that, conjointly with the Secretary of the Interior, is charged with centralizing the standardization of geographic names for the Federal Government.

During the calendar year, there were rendered 2,790 name decisions, including 237 on domestic names and 850 on Antarctic names. The publication entitled *The Geographical Names of Antarctica* included an exposition of the Antarctic nomenclature problem, a list of expeditions to Antarctica, and a full statement of name policies and their application.

More than 6,800 telephone and mail

inquiries were answered, more than double the number in 1946. About 20,000 copies of technical bulletins and decision lists were distributed. Directions for the treatment of geographical names in 10 areas in this hemisphere were published. Preliminary examination was completed for 18 other areas. The foreign name files of the Board were augmented by the processing of large numbers of names for Government maps and reports.

BUREAU OF LAND MANAGEMENT (I)

The Bureau of Land Management executes cadastral surveys and resurveys in the 29 Public Land states and Alaska, which constitute the original public domain. Such surveys are necessary for the identification, management, and disposal of the public lands.

The official plats are prepared on a standard scale of 1 inch equals 40 chains although in special cases scales of 1 inch equals 20 chains and 1 inch equals 10 chains are used. The Bureau also compiles and publishes maps of the Public Land states on a scale of 1:760,320 (1 inch equals 12 miles) and the official wall map of the United States on a scale of 1:2,344,320 (1 inch equals 37 miles). These maps show the extent of the public land surveys and the location of the national parks, Indian Reservations, grazing districts, national forests, reclamation projects, and other Federal reservations.

During the fiscal year 1947, cadastral engineering activities were carried on in 19 states and Alaska. Surveys and resurveys under the rectangular system, aggregating 2,925,012 acres, were completed in addition to field investigations and miscellaneous survey projects not measurable on a quantity basis. These surveys are represented on 245 plats prepared in final form, which, together with the official field notes, constitute the complete permanent record.

An important part of the field work involved the surveys and resurveys in the Missouri River Basin in North and South Dakota, Montana, and Wyoming. This work was carried on in cooperation with the Bureau of Reclamation and the Corps of Engineers, U. S. A. The Missouri Basin program contemplates the resurvey of approximately 10,000,000 acres along the Little Missouri, Powder, Cheyenne, and Moreau rivers. In addition to recovering and monumenting the public land corners for the identification of land boundaries, these surveys afford control for extension of topographic mapping within the Basin.

The map compilation activities of the Bureau for 1947 include work on the revision of the map of Wyoming which is nearly completed. Some revision has been made of the official map of the United States, and a new edition will be printed in 1948.

BUREAU OF RECLAMATION (I)

The Bureau of Reclamation, in carrying out its responsibilities for development of the water resources of the West, has a great and continuous need for all kinds of maps. First of all, it uses numerous quadrangle maps prepared by the Geological Survey, and, in cooperation with the Survey, finances the preparation of such maps in areas when immediate needs require higher priority work than the normal demands on the Geological Survey would permit. In addition, the Bureau, using specifications approved by the Survey, awards contracts for aerial surveys and mapping in areas urgently needed for carrying on important investigations and construction of irrigation projects. During the calendar year 1947, contracts were awarded by the Bureau for photography and photo mosaics at various scales from 1:4800 to 1:24,000 in areas totaling approximately 3,500 square miles in California and South Dakota. Approximately 280 square miles of topographic mapping at a scale of 1:4800 with a one-foot contour interval was completed by the plane table method in Texas.

The Bureau of Reclamation is not a primary map-making agency and undertakes to contract for such work or to perform such operations only when existing maps of suitable quality are not available, and primary map-making agencies can not undertake to prepare suitable maps by the time needed, or when the mapping is a specialized type peculiar to Bureau needs.

U. S. COAST AND GEODETIC SURVEY (C)

This agency is charged with surveying and charting the coastal waters under United States jurisdiction; executing geodetic control surveys in the interior; compiling aeronautical charts for civil aviation; investigating tidal and magnetic phenomena; and making earthquake investigations. The results of these surveys and investigations are made available to the public in the form of nautical and aeronautical charts, Coast Pilots, Tide and Current Tables, geodetic control data, and magnetic and seismologic publications.

Hydrographic surveys, covering 52,562 square miles and including 47,856 miles of sounding lines, were made in Alaska and along the Atlantic and Gulf coasts. Shoran, for determining the position of the survey vessel, was successfully used, for distances up to 50 miles from shore, in the western Aleutians and on the Atlantic Coast. A new electronic position indicator, developed in the Bureau, was used on surveys in the Gulf of Mexico. The use of this instrument will permit the extension of accurate hydrographic surveys for distances up to 300 miles from shore.

During the year, 13 new nautical charts, 77 new editions, 502 new prints, and 52 reprints were published. Over 1,250,000 nautical charts were issued. The total number of nautical charts published to date is 892, of which 166 are of Philippine waters. Five of the new series of 33 Gulf Intracoastal Waterway charts were published, and eight more were in various stages of completion. This project will cover 1,076 miles of coastline from Carabelle, Fla., to the Mexican border. Several experimental charts for use in Radar navigation were published, including a chart for use with Loran.

Geodetic control surveys for major engineering and mapping projects, such as those planned for the Columbia River Basin, Kentucky Reservoir, and Missouri and Trinity River valleys, were continued under priorities arranged with the Corps of Engineers, Bureau of Reclamation, and other agencies. Detailed urban control surveys in cooperation with local agencies were executed in several localities. Surveys were made as follows: First- and second-order triangulation, 4,140 linear miles covering 76,665 square miles of area; first-order base lines measured, 27, totaling 93 linear miles; first- and second-order traverse, 133 stations, covering 43 miles; astronomic stations occupied, 10; first-order levels, 3,494 miles; and second-order levels, 7,599 miles. Reconnaissance for future triangulation extended along 6,052 miles of arc, covering 102,800 square miles of area. The elevations of 13,565 bench marks were determined, and 2,808 new triangulation stations were located. Gravity determinations were made at five stations in the Hawaiian, Palau, Admiralty, and Solomon islands for the War Department. Levels were run to 86 airports, making a total of 712 airports at which sea level elevations have been determined and connected to the Federal network of levels. Computations and adjustments were completed for 92 triangulation projects, involving 6,625 stations for which geographic positions (latitudes and longitudes) were adjusted. A special control survey to mark the Virginia-District of Columbia boundary, assigned to the Bureau by act of Congress, was completed.

The aeronautical charts of the United States and possessions, 789 different charts in all, were maintained. These include 226 standard charts, 521 instrument approach and landing charts, and 42 radio facility charts. The latter is a new series covering the United States and provides complete radio data for planning and executing cross-country flights. Nearly 13,000,000 aeronautical charts were issued. Of special interest was the publication of a new route chart, Chicago, Illinois to Gander, Newfoundland, designed to meet the requirements of air carriers operating over the North Atlantic with high-speed, high-altitude, long-range aircraft. The second of a series of aircraft position charts, covering western Europe and northwestern Alaska, was published for the use of the military forces and air carriers operating certificated overseas routes.

Air photographs of 11,255 square miles, mostly in Alaska, along the Gulf Intracoastal Waterway, and in selected areas along the West Coast, were taken in collaboration with the Coast Guard. These photographs were used for nautical chart revision and for the compilation of planimetric and topographic maps. About 200 airports were photographed for use in making airport surveys.

Surveys in the Philippines have been resumed by the Bureau under provisions of the Philippine Rehabilitation Program. The Bureau also participated for the seventh consecutive year in the "Cooperation with the American Republics" program of the State Department. Under this program Bureau experts are assigned to the various countries in advisory capacities, and fellowships are given to qualified persons from the Republics for study in field methods and reproduction processes.

FEDERAL COMMUNICATIONS COMMISSION

A large percentage of the maps prepared by this agency are primarily for use in connections with hearings and long-range service studies. These maps are usually of interest only to radio engineers and others in the radio profession. All maps presented at hearings are public documents and may be obtained or examined at the Commission's offices, unless legal restrictions apply.

Data used in map compilation is generally obtained by engineers of the Commission as a result of actual measurement and field survey work. Base maps are provided by the Coast and Geodetic Survey, the Bureau of the Census, and other agencies. Certain of these maps which are of general interest are published in periodicals from time to time.

Maps completed or in process include those in the following general classifications: Coverage of stations, particularly standard broadcast, FM, and television; national coverage of various classes and combinations of Aural Broadcast Stations; maps relating to broadcast in interference and inspection and monitoring regions; coverage showing telephone and telegraph networks within and emanating from the United States and its possessions; maps of ground conductivity for the United States and Canada and a similar one in preparation for Cuba; nationwide television station allocation plan; and numerous other maps pertaining to frequency allocations, airways communication, directive antenna patterns, service locations, radiated field of foreign broadcast stations, and direction charts.

CORPS OF ENGINEERS (N.D.—ARMY)

The Corps of Engineers is responsible for all maps and surveys required by the Department of the Army. In this capacity the Corps, through the Chief of Engineers, directs the activities of many large organizations such as the Army Map Service, Mississippi River Commission, U. S. Lake Survey (all reported separately), and the District Engineer Offices which perform considerable survey work incidental to river development and other activities. Maps for military purposes are normally produced in the United States by the Army Map Service, and overseas by topographic organizations of the Corps. During the year efforts of the Corps of Engineers military mapping facilities were primarily concerned with the preparation of maps throughout the world that are of potential interest to the Department of the Army.

Mapping in the United States was generally confined to small scale strategic maps required by the Department of the Army, large scale maps of military training areas, lake navigation charts, and engineering maps required for civil works activities of the Corps.

Maps involving direction finding activities concerning illegal radio station operation interference, or safety of life at sea and in the air, are prepared by the Commission but are not generally available to the public because of their confidential nature.

Booklets with maps are supplied to the Army, Navy, Civil Aeronautics Administration, and Commercial Airlines with instructions for obtaining Federal Communications Commission bearings for airplanes or other mobile units.

The maps produced by the Commission are of primary interest to radio engineers and communications companies as far as station coverage and interference are concerned and to navigators for direction finding and bearing activities.

FEDERAL POWER COMMISSION

The Federal Power Commission prepares and publishes maps relating to the production and distribution of electric power and natural gas. The electric power maps of the Commission are issued in four series which include regional maps consisting of 11 main sheets, electric survey maps comprising 84 principal map sheets, state maps now in process of preparation, and a wall map on a national basis, published in 1941 and scheduled for early revision.

The series of Regional Transmission Maps of the United States is made up of 11 map sheets and six sheets of inserts containing information on an enlarged scale for congested areas. The 11 map sheets are on a scale of 32 miles per inch and the inserts are drawn to various larger scales. All are printed in black and white. These maps show all power stations, both hydro and fuel, of public and private electric systems and of industrial companies, with a capacity of 1,000 kilowatts and over, all transmission lines of 22 kilovolts and over, and main substations. Accompanying this series is a plant book, listing by states not only the operating utilities but also the power stations, both keyed to code numbers. The latest revision was November 1945. A current revision is bringing the Regional series up to date as of June 30, 1947. These maps are available separately or in sets.

During the war, the U. S. Corps of Engineers, owing to press of war work, turned over to the Commission their series of Electric Survey Maps for revision. This set consists of 84 map sheets, a key map, and four power zone sheets. For this series, the United States was divided into 84 rectangles. The revision was completed in 1946. These maps show electric facilities, except distribution, for all public and private electric utilities and principal industrial companies; power stations, both hydro and fuel; transmission lines 22 kilovolts and over, and principal substations. They are available in single sheets or assembled sets.

There is now in preparation a map series on a state basis which will be printed in colors. It will contain, besides the latest available information shown on the earlier series, principal communities served by each utility with connecting lines. The colors will define the properties by holding company groups. These maps will be on a scale of 10 miles per inch in states where electric facilities are congested and 20 miles per inch in other states. It is expected that maps of this series will be available in both individual sheets and assembled sets.

In 1941 a Wall Map of the United States was published and is still available. It is expected that, upon the completion of the series of state maps, this wall map will be revised and brought up-to-date.

The Commission has completed and published natural gas maps for all states except California, Nevada, Washington, Oregon, Idaho, North and South Carolina, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, and Florida. Maps for California, New Jersey, and Florida have been compiled but not yet published. These maps are published at a scale of approximately 18 miles per inch on 19 x 26 inch sheets. Attached to each is a printed list showing the "Company Ownership and Communities Served."

The Commission expects soon to issue a new Wall Map printed in colors at an approximate scale of 60 miles per inch—"Principal Natural Gas Pipe Lines in the United States and Communities Served with Natural, Manufactured, and Mixed Gas, 1948," with company names printed thereon.

PRODUCTION AND MARKETING ADMINISTRATION (A)

The Production and Marketing Administration is continuing to use ratioed aerial photographs and mosaics in administering its Agricultural Conservation, Allotment, and other programs. It is continuing its program of securing new aerial photography and is rephotographing many areas to replace obsolete photography. The amount of new photography secured during 1947 was approximately 60,000 square miles.

FOREST SERVICE (A)

This agency prepares topographic and planimetric maps required for adequate Forest Administration and development. Areas to be mapped are selected from consideration of factors such as value of timber stands, their accessibility, and relative location. Administration maps are mostly compiled or prepared with planimetric data, but, where necessary, topographic data is also included. Constant checking and revision is a continuing function. Active topographic mapping areas are located in Arizona, California, and Washington. Planimetric work is in progress in California, Oregon, Washington, Idaho, Montana, and Mississippi.

Currently, a sustained effort is being directed to standardize the content of planimetric maps at the various reproduction scales to improve appearance and utility for administrative uses. The Forest Service is cooperating with other Federal mapping agencies in the Joint Map Practice Committee and will follow its decisions in this standardizing procedure.

Existing assignments of work for the Hydrographic Office of the Navy Department are being completed and a small mapping project for the Corps of Engineers Army Map Service is well under way.

U. S. GEOLOGICAL SURVEY (I)

This agency is responsible for making and maintaining an inventory of the nation's mineral wealth and its terrain as well as water resources. The terrain inventory—topographic surveys—covers little more than half of the country and much of the earlier reconnaissance work is badly in need of revision to meet present requirements. During the year, mapping work was accelerated by increased cooperative programs with state agencies, by augmented requirements of Federal agencies particularly in areas such as Alaska, Missouri River Basin, and Columbia River Basin, and by large assignments from the military for maps of Army Posts, Camps, and Stations, and aeronautical charts of many foreign areas. Revision of obsolete or otherwise inadequate maps also constituted a major activity, particularly with reference to large areas in California.

In the year, 175 new topographic maps were published, in addition to 445 reprints of maps whose stocks had become exhausted. A number of special maps and geologic maps were published as well as those included in professional papers, bulletins, and water supply reports. Work continued on the series of Transportation Maps of the United States, the series of the Millionth Scale Map of the World, the new compilation and revision of State Maps, and Aeronautical Charts for the Air Forces. The major part of the new topographic mapping was for areas in California, Missouri, Illinois, Indiana, Idaho, New York, North Dakota, Nebraska, Mississippi, Texas, and Pennsylvania.

In the Missouri River Basin approximately 3,000 square miles of topographic surveys and control for 10,000 square miles more were completed. In the Columbia River Basin control for 550 square miles of mapping was established. Approximately 6,000 square miles of mapping of Army Posts, Camps, and Stations were completed and an additional 6,500 square miles of area control were established for use by the Army in mapping. In total figures, new topographic mapping covered about 35,000 square miles. New horizontal control amounted to 12,500 square miles. Vertical control involved 18,400 square miles. Supplementary control covered approximately 31,000 square miles.

In connection with geologic and topographic surveys, 126,000 square miles of aerial photography were procured, and contracts were awarded for 69,500 square miles of additional coverage.

The aeronautical charting of foreign areas for the U. S. Air Forces was continued on a basis of both revision and new compilation, with emphasis on the former. Revision was accomplished on charts covering approximately 850,000 square miles of territory, while new compilation was completed for about 450,000 square miles of area. Work was continued on the Antarctic Project and several other special assignments for the Air Forces. The standard charts are compiled at intermediate scales for publication at small scales such as 1:250,000 and 1:500,000. Contours having intervals of 500 feet and in some cases 1,000 feet are added by means of photogrammetric processes involving the photo alidade. For all aeronautical charting work, the Trimetrogon system is utilized.

The preparation of the Transportation Map of the United States, scale 1:250,000, was continued for the Public Roads Administration. Thirty-five sheets in Alabama, Indiana, Missouri, and Mississippi were in various stages of compilation, inking, and checking. Twenty-one sheets in Nevada and Ohio were transmitted for reproduction and 17 sheets in Virginia, District of Columbia and vicinity, and West Virginia were in various stages of reproduction. Eight sheets in North Carolina were published.

Progress continued on the Millionth Scale Map of the World. Compilation, inking, and checking were carried forward on the I-11 (Los Angeles) and J-17 (Blue Ridge) sheets, and preliminary work was continued on the H-17 (St. Augustine) sheet. The I-17 (Savannah) sheet was transmitted for reproduction. Sheets designated as K-16 (Chicago), K-17 (Lake Erie), K-18 (Hatteras), K-10 (Mt. Shasta), L-10 (Cascade Range), H-14 (Austin), and K-16 (Mississippi Delta) were in various stages of reproduction at the end of the year.

In revision of state maps (new compilations), the preparation of the original manuscripts for Wyoming, New Jersey, Massachusetts, Rhode Island, and Connecticut was completed and the manuscripts were transmitted for reproduction. Compilation, inking, and checking were in progress for Maryland, Delaware, Illinois, and Iowa.

Mapping operations in Alaska are directed toward two major objectives, the preparation of the Alaska Reconnaissance Map Series, scale 1:250,000 and the completion of standard topographic mapping at the scale 1:62,500. The reconnaissance maps each cover quadrangles one degree of latitude in length and three, four, or five degrees of longitude in width, containing an average area of about 8,000 square miles. These maps are compiled from existing source materials, control, and trimetrogon photography. Over 100,000 square miles of such compilation was in progress during the year. The larger scale standard topographic mapping has been undertaken in areas of special geologic or development interest. Work is now under way on about 8,000 square miles of such mapping in central, southeastern, and southwestern Alaska. In connection with this mapping program, plans have been made to obtain vertical aerial photography of all of southeastern Alaska and a large area in central Alaska. Control work has been progressingly advanced.

During the year, extensive revision and reprinting were accomplished on the two basic general maps of Alaska —Alaska Map E, scale 1:2,500,000 and Alaska Map A, scale 1:5,000,000. Map E will be used as a base for establishing the pattern of quadrangle coverage.

Modern mapping has become a series of closely integrated and highly specialized processes. In each of these processes there is a fertile field for the application of scientific developments engendered by the war and the following peacetime research. During the year, the Geological Survey closely examined this whole field to segregate for particular attention and study those elements of electricity and electronics, optics, mechanical instrument design, photography, including new film emulsions, recording devices, aircraft, light metals, and related subjects which may be applicable to mapping for either efficiency, economy, or improved accuracy.

Three German and two Swiss precise photogrammetric plotting instruments were acquired and put into operation both on test and production bases. Four new photogrammetric plotting instruments of domestic origin were in various stages of design, construction, trial tests, and production operation. Of these, three originated in this agency and the fourth was developed in conjunction with another government agency. Major improvements were also made on the plotting equipment now mainly used by the Survey.

In the field of aerial photography investigation, design, and development was carried forward on cameras and recording devices captured from the Germans, lenses remarkably free from distortion, and the application of infra-red photography for use in stereo photogrammetric plotting equipment. Future activities will include tests to determine adaptability and advantages of helicopters for taking aerial photographs.

New types of electronic altimeters developed by commercial concerns are scheduled for field trials in the near future. These are intended for differential leveling in the extension of vertical control for mapping.

During the year, an electrical survey net adjuster was designed, constructed, and is now in production use. In this, survey lines comprising the usual network pattern required for mapping are simulated by electrical circuits. Simultaneous adjustment of the component lines is accomplished through voltage measurements. Results comparable to precise mathematical adjustments by the least squares method are obtained with far greater ease and economy.

In keeping with the many developments in the operational phases of mapping, considerable effort has been directed to the analysis and standardization of mapping procedures. New instructions and technical memoranda have been prepared to support all changes. Eventually, all parts of the present *Topographic Manual* affected by new methods and developments will be replaced by new instructions.

The Map Information Office continued to function in its designated capacity. Details concerning its accomplishments are given under the separate report for that office.

HYDROGRAPHIC OFFICE (N.D.—NAVY)

At the end of the year, the Hydrographic Office had on issue approximately 4,600 nautical charts, 340 aviation charts, and 150 nautical and aviation publications.

During the year, this Office published a total of 280 new editions of nautical and special charts, which are further subdivided as follows: 100 replacements of reproductions of foreign charts, 39 compilations from foreign data, 74 new editions, 17 new charts from U. S. Naval Surveys and 50 special and miscellaneous charts.

Among the more notable accomplishments were: (1) the publication of a complete new *Index-Catalogue of Nautical Charts and Publications*, of larger size and scale and an increased number of individual index sheets; (2) the publication of a new series of isomagnetic charts showing magnetic inclination or dip, horizontal intensity, vertical intensity, total intensity, north and east components, and variation of the compass for the North and South Polar regions, and the World; (3) a new series of position plotting sheets on scale 1° longitude 0° to 65°.

The major program of this Office continues to be the replacement of reproductions of foreign charts, the issuance of which has been necessary for many years. At the end of the year, approximately 1,500 foreign charts remained to be replaced by standard U. S. Navy charts. It is expected that this program will continue until 1953 before complete independence from foreign sources will be accomplished.

Two fully equipped large survey ships, the *U.S.S. Tanner* and *U.S.S. Maury,* plus several smaller ships of the AGSC Class, were engaged in surveys of the East Coast of Mexico, and islands of the Caroline group in the Pacific.

Triangulation computations and adjustments were made for areas in Antigua, Bahama Islands, Bikini Atoll, Cuba, and Haiti.

Approximately 88,000 photo prints of the 1947 Antarctic Survey Expedition were catalogued, indexed, and filed. Supplementary information and control will be obtained by the 1948 Expedition for the correction of existing charts and publications.

Photographic compilations of the East Coast of Mexico are proceeding in advance of the hydrographic surveys.

Nine new Loran and three new miscellaneous aviation charts were compiled and printed, while new editions of aviation charts totaled 124, divided mainly between the V-70, VR, V-30, V-14 and Loran series.

One new Naval Air Pilot and two Weather Summaries were completed.

During the year, 128 aviation and Loran charts and 11 publications were canceled, with two charts being withdrawn from issue.

The program of new aviation and Loran charts being now essentially complete, a maintenance plan was prepared in which the 230 large size charts were divided into three groups to be revised at 1-, 2-, and 3-year intervals. This program requires the preparation of 160 new editions of these charts per year, exclusive of Loran charts.

In order to reduce the time to make revisions and to reduce the frequency of printings, it was necessary to change the specifications of the V-14 series of charts. This was accomplished by substituting contours for color gradients, elimination of frequencies of all radio navigation aids, and headings and diagrams of the radio range legs.

The preparation or correction, and issuance of other special publications such as Pilot Charts, Sailing Directions, Radio Aids, navigator's manuals and special tables continued throughout the year but at a slower rate than for the year 1946.

INTERNATIONAL BOUNDARY COMMISSION

This Commission is charged with the establishment and maintenance of the international boundaries between the United States, Alaska, and Canada.

During the year, maintenance work was undertaken on four sections of this boundary, (1) Lake of the Woods and Rainy River, Minnesota-Ontario boundary; (2) Forty-ninth Parallel from Northwest angle of Lake of the Woods to Pembina Mountains (completed), Minnesota-Manitoba boundary and North Dakota-Manitoba boundary; (3) Georgia, Haro, and Juan de Fuca Straits, Forty-ninth Parallel to Pacific Ocean, Washington-British Columbia boundary; (4)

Kelsall River, Alaska-British Columbia boundary.

The work comprised inspection of monuments, triangulation stations and bench marks, and repairs to those found damaged; triangulation and traverse surveys for determining the position of those found displaced; and re-clearing a 20-foot vista along the boundary through timber. In all, 540 miles of boundary were covered, and 86 miles of vista were re-cleared. Numerous monuments were inspected or repaired or moved, and 200 triangulation stations were recovered while a number of others were occupied.

INTERNATIONAL BOUNDARY AND WATER COMMISSION

This Commission executes surveys and prepares maps needed for the official discharge of its responsibilities in connection with the United States-Mexico boundary and with the administration of the water resources along it.

Accomplishments during the year include aerial surveys along several sections of the Rio Grande River from San Ygnacio to Roma, Tex.; from Roma to the Gulf of Mexico; between the upper end of Quitman Canyon, Tex. and the Lajitas, Tex.; from the mouth of Devils River to San Ygnacio, Tex. These projects totaled approximately 3,000 square miles of photography. Scales are mainly 1:20,000 with some large scale work at 1:6,000. In addition, a large scale aerial survey was made of the cities of Calexico, Calif., and Mexicali, Baja California.

In cooperation with the Mexican Section of the Commission, a topographic map was prepared of the Colorado River Floodway from the upper boundary line between California and Baja California to the lower boundary line between Arizona and Sonora. The Commission also prepared a topographic map showing terrain on both sides of the Rio Grande River between Penitas, Tex., and the river bridge connecting the towns of Hidalgo, Tex. and Reynosa, Tamaulipas, Mexico.

In addition to the above projects, this agency completed miscellaneous local surveying and mapping work in connection with its construction projects.

LAKE SURVEY OFFICES (CORPS OF ENGINEERS) (N.D.—ARMY)

The Lake Survey of the Corps of Engineers maintains charts of the Great Lakes, Lake Champlain, New York channels, Lake of the Woods, and Rainy Lake, primarily for navigation use. They show the hydrography of water areas and topography of limited areas of the contiguous shores and islands so as to show the docks, structures, and landmarks visible from the lakes and channels. Various scales are employed to portray features in adequate detail for the purpose of the different classes of charts. The small scale of the general lake charts is suitable for the needs of open-lake navigation; the medium scales of coast, river, and sectional charts afford greater detail for the closer navigation in the areas covered; and the largest scales show the details pertinent to restricted navigation in harbors and confined localities.

During the year, activities were limited to maintenance and revision of charts. Plans for 1948 include revision of charts of Lakes Superior and Huron, and St. Marys, St. Clair, and Detroit rivers. Data for these revisions were obtained by field parties.

Field work scheduled for 1948 includes examination and revision surveys on Lakes Erie and Ontario, and the Niagara and St. Lawrence rivers. Soundings will be taken in inshore waters of Lake Erie. In addition, hydraulic field work will be accomplished on the Detroit and St. Clair rivers.

LIBRARY OF CONGRESS

The Division of Maps of the Library of Congress administers a collection of approximately 1,000,000 maps (2,000,000 items), 16,000 atlases, gazetteers and pamphlets (19,000 items), and 70 globes, which give extensive areal, subject, and historical coverage. To enrich these collections come all maps, geographical atlases, and globes deposited for copyright, all unclassified maps published by Federal agencies, thousands of maps and atlases received through international exchange and many items acquired by purchase and gift. In addition, the Library's general collections contain a wide selection of geographical and cartographical publications upon which the Division of Maps may draw.

From these rich and varied resources. the Division is prepared to supply cartographical and geographical materials and information to persons visiting the Library, and to answer questions of a geographical nature submitted through correspondence. During the year, the Division serviced approximately 7,000 such requests made by either personal visitors, correspondence, or telephone inquiries.

Catalogue cards, for maps being distributed to depository libraries by the Army Map Service, have been printed and distributed. Catalogue cards for the gazetteers, bulletins, etc., in the same distribution program, are in preparation. In cooperation with the Copyright Office, the Division maintains a catalogue of all copyrighted maps. This catalogue includes all maps presented for copyright from 1897 to date.

The Maps Division continues to cooperate with the Documents Expediting Project in the Library of Congress in the distribution of Army Air Forces aeronautical charts, selected hydrographic charts and the O.S.S. maps that have been released from security classification.

The Library is participating, with other Federal agencies, in a cooperative program for foreign acquisitions and exchanges. As a result of this program 10,000 maps and 30 atlases were added to the Division of Maps collections in 1947.

MAP INFORMATION OFFICE (U. S. GEOLOGICAL SURVEY) (I)

During the year, this Office continued to maintain and augment complete information regarding all published or otherwise available topographic maps, planimetric maps, aerial photography, aerial mosaics or photo maps, geodetic control, and data pertaining to work in progress and new schedules of the various Federal agencies interested in surveying, mapping, and photogrammetry.

The preliminary study of the status and evaluation of topographic mapping in the United States, made during 1946, was completely revised and broadened to include planimetric maps. Copies of this status map and related explanatory text are available upon request.

The second edition of the status of aerial photography in the United States was compiled and published. This issue showed available photography, additional coverage in areas photographed more than once, and new projects under way by Federal agencies and two groups of state and commercial agencies. A second aerial photography index map, showing the coverage of all agencies in Alaska, was published for limited distribution to government agencies only.

A status map showing all available aerial mosaics or photo-maps held by government agencies was completed and published late in the year. Also shown are the scale of the mosaics and the date of compilation. A related explanatory statement was also issued.

This Office now serves as a central clearing point wherein any agencies contemplating new surveying, mapping, or photogrammetric projects can ascertain any other similar existing or contemplated work for the areas of interest, thus fully safeguarding against unnecessary duplication or overlapping of mapping activities.

In addition to the functions mentioned, the preparation of exhibits and press articles concerning topographic mapping, the distribution of control data, and general assistance to educational institutions have been assigned to the Map Information Office. Requests for information from Survey production offices, other Federal and state agencies, the general public, and foreign governments continually increased during the year.

MISSISSIPPI RIVER COMMISSION (N.D.—ARMY)

This Commission is charged with improvement of the lower Mississippi River and tributaries in the Alluvial Valley for flood control and navigation under the direction of the Secretary of the Army and the supervision of the Chief of Engineers. For this purpose it has published and maintains 220 topographic sheets, scale 1:62,500, covering 52,000 square miles of area in Missouri, Illinois, Kentucky, Arkansas, Tennessee, Mississippi, and Louisiana. The Commission also publishes multi-colored wall maps at various scales of the Lower Alluvial Valley of the River. Practically the entire Alluvial Valley has been photographed from the air for this mapping.

During the calendar year 1947, the 15th Edition of the map folio of the lower Mississippi River for navigation purposes was reprinted with corrections. An index to topographic quadrangles of the Alluvial Valley of the lower Mississippi River was brought up to date and republished Jan. 1, 1947. Topographic quadrangle maps were corrected for publication in the future. A folio of navigation maps, scale 1:62,500, was prepared and published for sections of the St. Francis River in Missouri, White River in Arkansas, Yazoo, Tallahatchie, Coldwater, and Big Sunflower Rivers in Mississippi, and the Red River in Arkansas and Louisiana. The folio of navigation maps of the Mississippi River from Cairo to the Gulf was in process of revision for Edition 1948, and similar work was accomplished on the folio of maps of the Intracoastal Waterway from Port Arthur, Tex. to New Orleans, La. Navigation maps are in process of preparation and publication of other navigable streams in the Lower Valley. Surveys were made over areas involved in flood control and navigation projects within the jurisdiction of the Mississippi River Commission. Hydrometrical surveys were made during the year, and the results of those made in 1944 were published in a volume entitled *Stages and Discharges of the Mississippi River and Its Outlets and Tributaries.*

PUBLIC ROADS ADMINISTRATION (FWA)

The mapping activities of the Public Roads Administration are directed toward the compilation of highway maps, of which three series are regularly reproduced for publication and general distribution.

The Transportation Map series, aggregating 441 sheets for the 48 states, is a cooperative undertaking by this agency and the Geological Survey. Highway and other related data are furnished by the Public Roads Administration and compilation and printing is done by the Geological Survey. These maps are published at the scale 1:250,000 and show all highways and county or other connecting roads. Other planimetric data shown include cities, towns, parks, reservations, railroads, airports, canals, drainage, and other related features. Maps of 28 states, aggregating 246 sheets, have been published, and maps for 10 other states, including the District of Columbia, are in process of compilation, drafting, or reproduction. Maps in this series are subject to periodic correction. These maps are widely distributed to libraries, educational institutions, transportation companies, and commercial map publishers, and are available to the general public by purchase from the Superintendent of Documents.

It is planned to publish in 1948 a revised edition of the wall map showing the United States System of Numbered Highways together with the Federal Aid Highway System. This compilation is in the form of a red overprint on the General Land Office base map of the United States, scale approximately 37 miles per inch.

Data for the highway overprint and for correction of Federal Reservation boundaries are prepared by this agency. Photography and printing are done by the Geological Survey.

Another regularly published map is that showing the United States System of Highways according to the latest published descriptions of the American Association of State Highway Officials. This is in the form of a red overprint on the United States map in three colors. This map is very useful as an index and for outlining routes of travel and supplying touring information.

The Public Roads Administration also assists in and encourages statewide highway planning surveys in all of the 48 states. A part of this program includes the preparation of county maps, usually at the scale of 1 or 2 inches per mile, showing a great variety of cultural features and the location and status of improvement of every road. Reproductions of these maps, mostly in the form of blue line prints, are available for purchase from the several state highway departments. Plans are underway to institute a long-range program for the complete revision of these county maps within five year intervals.

In connection with this planning survey, many states have compiled state maps at various scales (usually approximately 8 miles per inch) showing important elements of highway data.

SOIL CONSERVATION SERVICE (A)

This agency prepares and publishes maps showing physical land conditions with particular relation to soil erosion and conservation studies and also prepares mosaics from aerial photographs for field use in the various Soil Conservation Districts.

During the year, 20 aerial photography projects, totaling 35,000 square miles of area, were in progress. Of this total, 25,700 square miles of photographic coverage were completed.

Aerial mosaics covering 2,514 square miles of area in Nevada, New Mexico, California, Idaho, Oregon, Washington, and Utah were completed. For additional mosaics, 24,000 square miles of templet assemblies were laid.

Drafting of a planimetric map of Burke County, Georgia was completed. Compilation and drafting was completed for most of Monmouth County, New Jersey. For this map, physical survey and other planimetric information will be overprinted on a mosaic background. Other drafting and compilation in progress or completed includes Kent County, Maryland, Oneida County, Idaho, Harmon County, Oklahoma, Otoe County, Nebraska, and Montour—Northumberland, Pennsylvania. A part of this work was done for the Bureau of Plant Industry.

SOIL SURVEY (BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING) (A)

The Division of Soil Survey, Bureau of Plant Industry, Soils and Agricultural Engineering, issued during the year 10 detailed soil maps with accompanying explanatory bulletins, bringing the total of such published surveys to 1,560. The new maps and reports were for the following areas: Sullivan County, N. Y.; Union County, Pa.; Fulton County, Ind.; Kings County, Calif.; Bucks County, Pa.; Fannin County, Tex.; Brown County, Ind.; Hamblen County, Tenn.; Humphreys County, Tenn.; and Bedford County, Tenn. Approximately 2,400,000 acres were covered by field surveys during the year by the Division and cooperating state agencies. The results will be published on maps in the regular soil map series.

TENNESSEE VALLEY AUTHORITY

The principal surveying and mapping activities of the Tennessee Valley Authority are those normally concerned with its planning, design, construction, land acquisition and disposition, and operational requirements. During the war, practically all of the Authority's mapping personnel and facilities were engaged in the execution of assignments for the War Department.

After resuming regular schedule work in the previous year, emphasis was again placed on the preparation of standard 7½-minute quadrangle topographic maps of the Tennessee River watershed, a project sharply curtailed during the war years in order to accept military mapping assignments from the War Department. During 1947, production rates were increased and final edition maps were published for approximately 5,000 square miles.

A number of relatively small special assignments of mapping and control survey work was accepted from other government agencies. The majority of them were completed or practically completed during the year.

In the Watauga Reservoir area, some 3,000 acres were surveyed and mapped for the acquisition of land or land rights required for the project. Except for the usual clean-up activities, cadastral surveys were practically completed for the project. Staking of the reservoir clearing contour, approximately 110 miles in length, was completed.

Hydrographic surveys for navigation improvement and charting work in the Pickwick and Wheeler reservoirs included sweeping nearly 900 ranges and sounding high areas disclosed by the sweeping operations.

OTHER AGENCIES

While the agencies mentioned above may be considered the principal surveying, map production, or map research organizations of the government, others which are extensive map users also prepare maps relating to special subjects in their fields of endeavor or otherwise operate in related activities.

The Bureau of the Census compiles special maps for use in census surveys. They are largely of an analytical character and are illustrative of various census reports. The state maps of this agency showing minor civil divisions are in frequent demand. While the Civil Aeronautics Administration does not publish maps for general use, it is intensely interested in and closely connected with the development and production of aeronautical charts for use by civil aviation. It supplies to the chart producing agencies all information of an aeronautical nature that is necessary for the preparation of such charts of the United States and territories. The Bureau of Agricultural Economics prepares statistical maps relating to agricultural production and marketing to accompany detailed reports it issues on those subjects. The Weather Bureau prepares for distribution a daily weather map which is in great demand for a number of uses including air transportation.

The National Park Service procures or prepares maps and surveys for the administration and development of 171 areas under its jurisdiction. Generally, small scale maps are produced on an assignment basis by the Geological Survey. Large scale maps are produced by the Park Service. The Office of Indian Affairs is concerned with maps and aerial photographs for use in administering the various Indian Reservations. The Post Office Department prepares maps showing all postal routes, post offices, and related railroad supply routes. The incessant changes in mail supply and delivery services requires constant revision of the 6,832 maps this agency has in actual use. Many other agencies such as the Fish and Wildlife Service, National Housing Authority, National Archives, Bureau of Foreign and Domestic Commerce, and Rural Electrification Administration are extensive map users and occasionally prepare special compilation of a related nature.

STATE GEOLOGICAL SURVEYS

By Wilson M. Laird
State Geologist of North Dakota

STIMULATED DEVELOPMENT OF NATURAL RESOURCES

In the present time, sometimes known in the vernacular as "The Atomic Age," we find that the natural resources of this and every other country are of extreme importance. Of course, the immediate interest as far as the atomic age is concerned are those minerals which are possibly radio-active. However, all natural resources are important in this, as well as any other age. The United States has been singularly blessed with abundance of natural resources, but the recent war and high post-war demands have not only depleted some of our resources to a marked degree, but are constantly causing inroads on the ones in which we are as yet still relatively sufficient. Therefore, the State Geological Surveys, or their equivalents the State Bureaus of Mines, have increased where possible their investigations and have helped to stimulate the development of natural resources in their respective territories.

As the United States is a large and varied area containing many different geological conditions, no two states have exactly the same natural resources in the same quantities. On one hand some states have abundant resources of coal; others have abundant resources of the metals; still others have abundant resources of oil; many have non-metallic products such as building stone, clays, sodium sulphate and other minerals which are also extremely important. The importance of building materials, such as gravel and sand, should not be overlooked. In fact, the gravel and sand industry surpasses in monetary value some other less prosaic minerals as far as the country as a whole is concerned. The importance of construction materials is extremely marked in areas where abundant deposits of sand and gravel are not readily available and where large construction projects, such as the dams on the Missouri River, are about to take place.

SCOPE AND ACTIVITIES OF STATE SURVEYS

The State Geological Surveys have been for many, many years interested in developing the natural resources in their own area and to this end they have conducted natural resource surveys, have done geologic mapping, and a number of them have done actual development or pilot plant work on the utilization of these natural resources for the benefit of all concerned. These states which have gone so far in the support of their State Geological Surveys are to be highly complimented. Probably the most outstanding example of industrial research for the benefit of the state and industries therein is that being done at the present time in the Illinois Geological Survey.

A number of State Surveys have had a long and illustrious history. In 1948, the 100th anniversary of the Alabama Geological Survey will be celebrated. Several of the Surveys, notably Pennsylvania, New York, as well as several others, are well over 100 years old already and during their life span they have done a tremendous amount of excellent work that has been done by no other agency, either private or public.

FEDERAL AND STATE COOPERATION

As time passes we are learning that there is more and more to be gained by cooperation between the State Geological Surveys and the Federal government agencies, particularly the U. S. Geological Survey. This cooperation varies from financial arrangements, whereby the states furnish half the money and the Federal government furnishes the other half and all of the personnel for the cooperative project, to projects where the state supplies men and the Federal Government supplies men to work together on a project. In all instances these cooperative projects have been of benefit, both to the state and to the Federal Government, and as far as the states are concerned there is a feeling that in most cases they are very well satisfied with the results. The realm of cooperation takes in not only actual geologic studies, but also ground-water work, surface water work and topographic mapping.

At the present time there is a great interest in ground-water work due to the urgency that a number of areas, particularly towns, have felt for the development of adequate water supplies. In the more arid parts of the country the matter of underground water is one of considerable importance, in view of the fact that there is not sufficient surface supply to accommodate the needs for the surrounding territory. Topographic mapping is also of extreme importance, owing to the fact that little can be done in a geologic way without adequate base maps. These maps also are used, not only by State Highway Departments, but also by recreation officials and planning authorities.

In the great central portion of the country in the Missouri River Basin there is at the present time a tremendous development going on under the supervision of both the Army Engineers and the Bureau of Reclamation. These agencies have been calling upon, not only other agencies of the Federal Government, but also the State Geological Surveys for information on the natural resources and related problems in their respective areas. In this respect the State Surveys have been glad to cooperate because it is felt that this development will be of great benefit, not only to the individual states, but to the entire country. In the Missouri Basin area there are planned a large number of dams for flood control and navigation, as well as irrigation. Should all of the proposed areas be irrigated and should all of these dams be constructed, it would be a tremendous boon to the region. In the area affected by these dams, undoubtedly a large number of people who will settle on farms will come into the region. Furthermore, a considerable amount of industry will probably follow because of advantageous location near natural resources, as well as abundant electric power which will be developed from the dams.

TRAINING OF MEN IN SURVEY WORK

Another part that the State Geological Surveys play, and one which is not particularly advertised, is in the training of men not only for the Federal Government but also for private industry and teaching positions. The State Geological Surveys have had on their staffs at one time or another a large number of people who have gone out into the various branches of the geological sciences. This training has been all to the good for the individuals, but it has not been entirely one-sided because the State Geological Surveys have been able to benefit by having young, vigorous men who were on their way up on their staffs and who have contributed a great deal to the good work that has been done by the State Geological Surveys. A number of the Surveys are employing graduate students during the summer months for field work which may be used as the basis for a Master's or Doctor's thesis in some university. In this way the State Geological Survey benefits by getting an area needing geologic work mapped relatively cheaply, and at the same time the student receives the benefit from his work for his thesis problem.

THE FINANCIAL ASPECT

The State Geological Surveys are, of course, totally dependent upon appropriations from their respective state legislatures. It is to be hoped, in view of the large demand for the survey type of geologic work, that the appropriations will be continued on a larger basis in the coming years. This is dependent to a large degree on business conditions and the general tax structure as a whole. In any event, the State Geological Surveys need additional funds for hiring adequately trained men, for equipping well designed and well cared for buildings, and for research purposes. In the minds of most competent observers there has been more received in a monetary way from the work of the Geological Surveys in the respective states than the surveys have ever had appropriated to them. Therefore, it would seem that it would be a very fine business investment if the amount of money spent on State Geological Surveys was increased.

ALABAMA

Organization.—Geological Survey of Alabama, University, Alabama, Dr. Walter B. Jones, State Geologist.

Basic and Economic Geology.—*Projects:* Well logs, Coosa coal field; Brown iron ores of Alabama.

Water Resources.—*Projects:* Natural water losses of Alabama; Ground-water of south Alabama. *Publications:* Ground-Water Investigations in the Mobile Area, Alabama (Bull. 38).

Others.—*Publications:* The Theridiidae or Comb-Footed Spiders of Alabama (Mus. Paper 22).

ARIZONA

Organization.—Arizona Bureau of Mines, Tucson, Arizona, Dr. T. G. Chapman, Director.

Basic and Economic Geology.—*Projects:* Relation of structure to mineralization in central Arizona; Arizona minerals; Cooperation with State Land Department; Zinc and lead deposits of Arizona; Barite; Perlite, Engine sand; Light-weight aggregates. *Publications:* Minerals of Arizona (Bull. 153).

Others.—*Projects:* Spectrographic studies of contact deposits; History and statistics of Arizona mining. *Publications:* History of Mining in Pima County, Arizona; Progress and Trends in Mineral Dressing.

ARKANSAS

Organization.—Division of Geology, Arkansas Resources and Development Commission, Little Rock, Arkansas, Harold B. Foxhall, Director.

Basic and Economic Geology.—*Projects:* Study of significant wildcat wells in eastern Arkansas; Cooperative project with the Coal Division, U. S. Bureau of Mines in sampling Arkansas lignite deposits; Lignite to be tested for Montan wax content; Mapping and sampling of a molybdenite deposit in the Magnet Cove area; Mapping and study of the rutile deposits in the Magnet Cove area; Supervision of exploration project on a north Arkansas phosphate deposit; Sampling and ceramic testing of the Wilcox clays of the Gulf Coastal Plain in Arkansas. *Publications:* Brookite Deposit in Hot Spring County, Arkansas (Bull. 11).

Water Resources. — *Projects:* Stream gaging at 46 stations.

Topographic and Planimetric Mapping.—*Projects:* Cooperative topographic mapping with the U.S. G.S. of the Malvern Quadrangle.

Others.—*Projects:* Compilation of annual mineral production statistics for the state.

CALIFORNIA

Organization.—Division of Mines, Department of Natural Resources, San Francisco 11, California, Dr. Olaf P. Jenkins, Chief.

Basic and Economic Geology.—*Projects:* Tesla, Blue Lake, Lake Elsinore, Hollister, Copperopolis, St. Helena, Nipomo and Quien Sabe quadrangles; Mines and mineral resources of Napa County; California mineral production and directory of producers; Statistical bulletin; Guide book to Sierra Nevada; Tungsten Hills district; San Diego pegmatites; West Point tunnel. *Publications:* *California Journal of Mines and Geology*, Vol. 43, for January, April, July and October, 1947; Consolidated

Index of Publications, Division of Mines and State Mining Bureau (Bull. 131); Minerals of California (Bull. 136); California Mineral Production and Directory of Mineral Producers for 1945 (Bull. 137); Iron Resources of California (Bull. 129); Geological Investigations of Chromite in California (Bull. 134); Placer Mining for Gold in California (Bull. 135); Copper Resources of California (in press).

COLORADO

Organization.—Colorado Geological Survey, Denver, Colorado, Dr. Ben H. Parker, State Geologist.

Basic and Economic Geology.—*Projects:* Cooperative work with the U.S.G.S. on the geology and mineral resources of Cripple Creek, San Juan, Kokomo, Ophir, Leadville-Minturn-Redcliff areas.

CONNECTICUT

Organization.—Connecticut Geological and Natural History Survey, Hartford 6, Connecticut, Dr. Edward L. Troxell, Director.

Basic and Economic Geology.—*Projects:* Two geologic studies in eastern Connecticut; Geologic study near Preston, Connecticut; Geologic study near Hammond Beach area; Study of Mollusks. *Publications:* Asilidae—the Robber Flies (Bull. 69); Spiders of Connecticut (Bull. 70).

Others.—*Publications:* Biennial Report.

FLORIDA

Organization.—Florida Geological Survey, Tallahassee, Florida, Herman Gunter, Director.

Basic and Economic Geology.—*Projects:* Micropaleontology; Geology and structure of Levy and Citrus Counties; Geology and structure of Jackson County; Correlation of well data; Prospecting for rare earths in cooperation with U. S. Bureau of Mines; General review of mineral resources in Florida; Preparation of mineral producers directory; Periodic investigation of fine character of basic clays and dolomites; Investigations of light weight aggregate and materials for making rock wool.

Water Resources.—*Projects:* Continuous cooperation with U.S.G.S. in ground water studies; Surface water studies, especially springs and lakes; Quality of water studies. *Publications:* Water Levels and Artesian Pressure in Wells in Southeastern States, Springs of Florida (Bull. 31).

Others.—*Projects:* Continued cooperation with University of Florida Engineering and Industrial Experiment Station, in prospecting clays. *Publications:* Elevations in Florida (Bull. 32); Seventh Biennial Report, Florida Geological Survey; Springs of Florida (map).

GEORGIA

Organization. — Department of Mines, Mining and Geology, 425 State Capitol, Atlanta, Georgia, Garland Peyton, Director.

Basic and Economic Geology.—*Projects:* Geology and mineral resources of Rabun, Towns and Habersham counties; Investigation of mica in mica schists to determine its suitability for use in grinding mica; Investigation of vermiculite deposits in Georgia; Investigation and exploration of amphibole asbestos deposits; Investigation of sericite phyllites in Georgia; Investigation of pegmatitic type deposits as a source of grinding mica; Investigation of kaolin and other mineral resources of central east Georgia. *Publications:* Directory of Mineral Producers; List of Publications on Geology and Mineral Resources of Georgia (Circular 1); Geology and Mineral Resources of the Paleozoic Area of Northwest Georgia in cooperation with T.V.A. (in press); Geologic map of northwest Georgia in cooperation with T.V.A., scale four miles to one inch.

Water Resources.—*Projects:* Hydrologic studies of limestone terranes in Baker and Mitchell counties in cooperation with the U.S.G.S. and Emory University; A study of salt water encroachment in the Savannah area, in cooperation with U.S.G.S.; Geology and ground water resources of the Paleozoic area, in cooperation with U.S.G.S.; Geology and ground water resources of eight counties in the Atlanta area, in cooperation with U.S.G.S.

Topographic and Planimetric Mapping.—*Projects:* Map of the mines, quarries and prospects in the Paleozoic area of northwest Georgia in cooperation with T.V.A.

IDAHO

Organization.—Idaho Bureau of Mines and Geology, Moscow, Idaho, A. W. Fahrenwald, Director.

Basic and Economic Geology.—*Projects:* Black Sand (monazite) resources surveys; Geological survey and mapping of the Yankee Fork area, Custer County; Geological mapping of the Little Lost River Mountain area, Butte County; Resources study of Diatomite; Beneficiation and processing of Idaho phosphate rock. *Publications:* A Geological Reconnaissance of the Hailey Gold Belt, Blaine County, Idaho (Pamph. 76); Beneficiation Tests on Gypsum Rock from Washington County, Idaho (Pamph. 77); Metallurgical Tests on the Manganese Bearing Sands of Payette County, Idaho (Pamph. 78); Beneficiation of Idaho Phosphate Rock (Mineral Resources Report No. 3); Diatomite Deposits of Southwestern Idaho (Mineral Resources Report No. 4).

ILLINOIS

Organization. — State Geological Survey Division, State Department of Registration and Education, Urbana, Illinois, Dr. M. M. Leighton, Chief.

Basic and Economic Geology.—*Projects:* Areal investigations and geologic mapping; Engineering geology reports on highway conditions, damsites, etc.; Pennsylvanian stratigraphy; Mississippian stratigraphy; Silurian stratigraphy; Cambro-Ordovician stratigraphy; Pleistocene system; Micropaleontological studies; Paleobotany of the Pennsylvanian; Geology and oil and gas resources of the Illinois basin; Secondary recovery of oil in Illinois; Studies of reservoir conditions in Illinois oil pools; Scouting of drilling wells and cooperation with Illinois Scout Check; Mapping and study of Illinois coal resources; Lithological and botanical constitution of Illinois coals; Studies to determine the usefulness of coal spores as index fossils; Briquetting of Illinois coal without binder; Investigation of combustion behavior of Illinois coal to develop improved stoker fuels; Investigation of suitability of low-sulfur Illinois coals for use in production of metallurgical coke; Chemical study of tars prepared from Illinois coals in commercial and pilot plant coking operations; The chemical constitution of Illinois coals; Proximate and ultimate analyses of Illinois coals; Geologic study of mine roof conditions; Fluorspar resources of southern Illinois; Utilization of fluorspar; Clay resources of Illinois; Petrology of Illinois clays; Special uses for Illinois clays and shales; Application of clay mineralogy to problems of the origin, discovery and production of oil; Clay mineralogy as related to soil materials and engineering problems; Limestone resources of Illinois; Sand and gravel resources of Illinois; Investigation of the physical properties of Illinois silicas; Viscosity of silicate melts. *Publications:* Pennsylvanian Ostracodes in Illinois (Bull. 70); Preglacial Erosion Surfaces in Illinois (R.I. 118); Upper Kincaid (Mississippian) Microfauna from Johnson County, Illinois (R.I. 122); King Oil Field, Jefferson County, Illinois (R.I. 119); Developments in Eastern Interior Basin in 1945 (I.P. 53); Oil and Gas Development in Illinois in 1945 (I.P. 54); Flood Tide in Illinois (Cir. 125); Correlation of Domestic Stoker Combustion with Laboratory Tests and Types of Fuels, II. Combustion Tests and Preparation Studies of Representative Illinois Coals (R.I. 120); Coke—A Key Industrial Material (Cir. 127); Trends in Coal Utilization (Cir. 128); Southern Illinois Novaculite and Novaculite Gravel for Making Silica Refractories (R.I. 117); Agstone Used in Illinois in 1945 (Cir. 123).

Water Resources. — *Projects:* Ground-water geology of industrial, urban and special areas; Electrical earth resistivity surveys for subsurface water-bearing sand and gravel deposits; Geophysical logging of water wells; Cooperation with Illinois Water Well Drillers Association.

Topographic and Planimetric Mapping.—*Projects:* Alton, Augusta, Buckley, Camp Grant, Camp Point, Chatham, Columbia, Crete, Cullom, Davenport, Dunlap, Fairfield, Hillsboro, Joliet, Kansas, Kimmswick, Leroy, Mendon, Milan, Morrisonville, Muscatine, Olney, Pana, Paris, Peoria, Peotone, Prairie Home, Rockford, St. Charles, Spring Bay, Stewardson, Strawn, Wapello, Waterloo and Woosung quadrangles. *Publications:* Gilman and Ramsey Quadrangles.

Others.—*Projects:* Economic review of mineral industries; Long-term manufacturing opportunities in Illinois; Handbook of fuels data—with special reference to fuel consumption in the Illinois coal market area; Studies of Southern Illinois economic problems; Investigation of the transmission of radio waves through rock strata. *Publications:* Geologic Map of Illinois; Soil Survey maps; Illinois Mineral Industry in 1945 (R.I. 121); *What About Our Minerals?* A Quiz Book on the Geology and Mineral Resources of Illinois (Cir. 124); Operation of the Illinois State Geological Survey (Cir. 126).

INDIANA

Organization.—Division of Geology, Indiana Department of Conservation, Bloomington, Indiana, Dr. Charles Deiss, State Geologist.

Basic and Economic Geology.—*Projects:* Completed flights totaling 20,000 square miles for airborne magnetometer survey of Indiana; Completed directory of mineral producers in Indiana; Microscopic studies of the Silurian and Devonian formations along the Cincinnati arch; Geologic and mineral resources of Jasonville quadrangle; Resurvey of coal lands of Indiana; Completed examination and sampling of 85 commercial limestone and shale deposits in Indiana. *Publications:* Silurian and Devonian Rocks of Southeastern Indiana; Wyandotte Cave.

Water Resources.—*Projects:* Cooperative program with the U.S.G.S.

Topographic and Planimetric Mapping. — *Projects:* Cooperation with the U.S.G.S.

Others.—*Publications:* Oil and Gas Developments in Illinois and Indiana in 1946; Data on Indiana in F. H. Lahee Report on Exploratory Drilling in 1946.

IOWA

Organization. — Iowa Geological Survey, Iowa City, Iowa, Dr. H. Garland Hershey, Director and State Geologist.

Basic and Economic Geology.—*Projects:* Pleistocene history of Mississippi River; Stratigraphy of Upper Des Moines Series; Geology of Floyd County; Geology of Shelby County; Subsurface geology of Cambrian strata of Iowa; Revision of Kinderhook strata of Iowa; Bibliography of geology of Iowa; Subsurface geology of the Osage and Kinderhook Series in southeastern Iowa; Subsurface geology of Ordovician strata in Iowa; The Neda zone in Iowa; Summary of agricultural limestone resources in south-central Iowa; Mineral production reports.

Water Resources. — *Projects:* Ground-water resources of Cerro Gordo County; Geology and groundwater resources of Webster County; Geology and ground-water resources of Cedar Rapids and vicinity; Mineral analysis of underground waters of Iowa; Surface water resources of Iowa.

Others.—*Publications:* Mineral Resources Map of Iowa.

KANSAS

Organization. — State Geological Survey of Kansas, Lawrence, Kansas, Dr. Raymond C. Moore, Director of Research and State Geologist, Dr. John C. Frye, Executive Director.

Basic and Economic Geology.—*Projects:* Geology and oil and gas resources of Crawford County; Collection of mineral statistics in cooperation with U. S. Bureau of Mines; New mineral resources map of Kansas; Geologic cross sections in eastern Kansas; General stratigraphic and lithologic studies in eastern Kansas; Chemical analyses of Kansas rocks and minerals; Oil and gas resources of Bourbon County, Neosho County, Miami County and Chautauqua County; Oil and gas developments in western Kansas during 1947; Oil and gas developments in eastern Kansas; Structural development of the Salina Basin; Subsurface rocks of Upper Cambrian and Lower Ordovician age in Kansas; Investigation of oil shales in Kansas; Collection of well samples, cores, and logs; Subsurface stratigraphy along the west flank of the Central Kansas Uplift; Lignite resources of the Dakota formation of Cretaceous age in North Central Kansas; Chemical study of coals from the southeast Kansas coal fields; Geophysical investigations in the Kansas part of the Tri-State zinc and lead field; Experimental development of lightweight aggregates from clay, shale, loess, and volcanic ash; Field and laboratory study of anhydrite-gypsum relationships; Molding sand resources of Kansas; A study of flint gravel deposits in eastern Kansas; Industrial uses of "ceramic slag"; Petrographic and chemical study bearing on the usefulness of Kansas chalk deposits; Special tests and study of clays near Great Bend, Norton, and other communities for proposed brick and tile plants. *Publications:* Coal Resources of the Wabaunsee Group in Eastern Kansas (Bull. 63); Cretaceous Stratigraphy of the Belvidere Area, Kiowa County, Kansas (Bull. 64, part 6); Clays of the Dakota Formation in Kansas (Bull. 67); Exploration for Oil and Gas in Western Kansas During 1946 (Bull. 68); Coal Reserves in Kansas (Bull. 70, part 1); Magnetic Survey of the Bala Intrusive, Riley County, Kansas (Bull. 70, part 2); The Late Pleistocene Loesses of Central Kansas (Bull. 70, part 3); Cemented Sandstones in the Dakota and Kiowa Formations, Kansas (Bull. 70, part 4); Magnetic Survey of Southeastern Crawford County, Kansas (Bull. 70, part 5); Oil and Gas Investigations, Preliminary Cross Section No. 3, Subsurface Geologic Cross Section from Ford County, Kansas to Dallam County, Texas; Oil and Gas Investigations, Preliminary Cross Section No. 4; Subsurface Geologic Cross Section from Scott County, Kansas to Otero County, Colorado; Oil and Gas Investigations, Preliminary Cross Section No. 5; Subsurface Geologic Cross Section from Trego County, Kansas to Cheyenne County, Colorado.

Water Resources.—*Projects:* Geology and ground-water resources of the "Equus beds" area; Geology and ground-water resources of Pawnee and Edwards counties; Geology and ground-water resources of Jewell county; Ground-water resources of the Kansas City industrial area; Ground-water resources of the lower Arkansas valley; Ground-water resources in the Smoky Hill Valley from Lindsborg to Junction City; Deep-water supplies of southeastern Kansas; Geology and ground-water resources of the following counties: Stafford, Barton, Norton, Republic and northern Cloud, Rice, Pawnee Valley; Geology and ground-water resources along the north fork of Solomon River; Geology and ground-water resources of Wichita and Greeley counties; Observation-well program involving water level measurements in approximately 450 wells. *Publications:* Geology and Ground-water Resources of Kiowa County, Kansas (Bull. 65); Geology and Ground-water Resources of Scott County, Kansas (Bull. 66); Geology and Ground-water Resources of Seward County, Kansas (Bull. 69).

Topographic and Planimetric Mapping.—*Publications:* Oswego and Parsons Quadrangles.

KENTUCKY

Organization.—State Department of Mines and Minerals, Lexington, Kentucky, Daniel J. Jones, State Geologist.

Basic and Economic Geology.—*Publications:* Relation of Sand Deposits at Tip Top, Kentucky, to the Meramec-Chester Boundary; Map showing Knox Dolomite Tests.

LOUISIANA

Organization.—Louisiana Geological Survey, Baton Rouge, Louisiana, Leo W. Hough, State Geologist.

Basic and Economic Geology.—*Projects:* Geology of Red River, De Soto, Webster, Allen and Beauregard Parishes; Reserve estimates; Basic and recalculations on oil and gas; Investigation of ceramic possibilities of clay resources of the State. *Publications:* Geology of Red River and De Soto Parishes.

Water Resources.—*Projects:* Special investigations in specific problem areas. *Publications:* Ground Water Resources in the Monroe Area, Louisiana.

Others.—*Publications:* Oil and Gas Map of Louisiana, Revised 1947 edition.

MAINE

Organization.—Maine Geological Survey, Orono, Maine, Dr. Joseph M. Trefethen, State Geologist.

Basic and Economic Geology.—*Projects:* Geology of part of coastline; Limestone; Diatomaceous earth; Feldspar; Serpentine. *Publications:* Manganese deposits of Aroostook County, Maine (Bull. 4); Report of State Geologist, 1945-46.

MARYLAND

Organization.—Department of Geology, Mines and Water Resources, Baltimore 18, Maryland, Dr. Joseph T. Singewald, Jr., Director.

Basic and Economic Geology.—*Projects:* Geologic mapping of Montgomery, Charles and Washington counties; Subsurface geology of eastern shore; Logging cores of U. S. Bureau of Mines drilling Georges Creek Basin; Fire clays of western Maryland. *Publications:* Carroll and Frederick Counties Report.

Water Resources. — *Projects:* Ground-water resources of Baltimore industrial area; Ground-water resources of southern Maryland; Conversion of remaining non-recording to recording gaging stations.

Topographic and Planimetric Mapping. — *Projects:* Topographic mapping of Garrett County; Revision of topographic maps of Kent and Montgomery counties. *Publications:* Prince George's County.

MICHIGAN

Organization.—Geological Survey Division, Department of Conservation, Lansing, Michigan, Gerald E. Eddy, State Geologist.

Basic and Economic Geology.—*Projects:* Limestones of southeastern Michigan; Niagaran formation; The Pleistocene; Public education in geology through lectures and magazine activities; Silurian and Ordovician; Stratigraphic research in petroliferous formations; Study of geology of Iron County; Study of geology of Dickinson County; Study of geology of western Marquette Range. *Publications:* Occasional Papers for 1946 on the Geology of Michigan.

Water Resources. — *Projects:* Study of water wells of the state; Study of water supply problems—Houghton-Hancock, Bessemer, Wakefield, Escanaba; Ground water fluctuations in north-central Michigan; Lake level problems. *Publications:* Ground-Water Resources of Alma Area; Ground-Water Resources of Battle Creek; Well Logs and Bedrock Geology of Gratiot County, Genesee County, Calhoun County, Kalamazoo County, Oakland County.

Others.—*Publications:* Pleistocene Geological Map of the Southern Peninsula; Annual Survey and Valuation of Iron and Copper for the State Tax Commission.

MINNESOTA

Organization.—Minnesota Geological Survey, Minneapolis, Minnesota. Dr. George M. Swartz, Director.

Basic and Economic Geology.—*Projects:* Geology of Cook County;

Glacial geology of Cook County; Geology of the Duluth area; Revision of stratigraphy of Cambrian and Ordovician; Revision of geology of the Cuyuna Range; Magnetics of north central Minnesota; Restudy of the clays and shales of Minnesota. *Publications:* The geology and Underground Waters of Northeastern Minnesota, Minnesota Geological Survey (Bull. 32).

MISSISSIPPI

Organization.—Mississippi State Geological Survey, University, Mississippi, Dr. William C. Morse, Director and State Geologist.

Basic and Economic Geology.—*Projects:* Three projects in general geology; Two projects in nonmetallic minerals. *Publications:* Itawamba County Mineral Resources (Bull. 64).

Water Resources. — *Projects:* Four projects. *Publications:* Geology and Artesian Water of the Alluvial Plain in Northwestern Mississippi (Bull. 65).

MISSOURI

Organization. — Department of Business and Administration Division, Geological Survey and Water Resources, Rolla, Missouri, Dr. Edward L. Clark, State Geologist.

Basic and Economic Geology.—*Projects:* Pennsylvanian correlations; Pleistocene of Missouri; Geologic mapping of local areas; Berryman Quadrangle; Steelville Quadrangle; Hermitage Quadrangle; Igneous rocks of Missouri; Osage Basin studies; Geology of St. Louis County; Reclassifying coals of Missouri as to age; Studies in southeastern Missouri lead belt and adjoining counties; Structure southwest Missouri zinc and lead district; Geophysical work Annapolis and Palmer areas; Miscellaneous mineral property examinations and studies; Inventory of Missouri clays; Limestone quarry investigation; Dolomite quarry investigation and agricultural lime; Limestone in St. Genevieve County; Limestone in St. Louis. *Publications:* Post-Devonian Igneous Activity in Southeast Missouri (R.I. No. 5); Limestone and Dolomites in St. Louis County (R.I. No. 5).

Water Resources.—*Projects:* Gaging of eighty-seven stations, pump tests and acidizing recommendations deep wells; Examination of well cuttings; Ground-water at Lake City, Missouri. *Publications:* Ground-water in Agriculture (I.C. No. 2).

Topographic and Planimetric Mapping. — *Projects:* Continuous mapping of twelve quadrangles. *Publications:* Mt. Aure, Corridon, Sinkin, Blythedale, Missouri City, Birchtree, Grandin, Green Ridge, Glascow, Lamoni and Chula.

Others.—*Publications:* Index Topographic Map; Dedication of Buehler Building (I.C. No. 1); Biennial Report of State Geologist, 1947.

MONTANA

Organization. — Montana State Bureau of Mines and Geology, Butte, Montana, Dr. Francis A. Thomson, Director.

Basic and Economic Geology.—*Projects:* Continuation of State geologic mapping; Study of deeper horizons as possible sources for petroleum; Geology and ore deposits of the Highland mining district; Study of the placer-gold deposits of Montana; Pegmatites of Madison County; Survey of nonmetallic mineral deposits of Montana; Preliminary survey of sodium sulphate deposits of Montana. *Publications:* Geology and Ore Deposits of Hecla Mining District, Montana; Dickite-Clay Deposits of Fergus County, Montana (Miscl. Cont. No. 9); Distribution of Sedimentary Rocks in Montana and the Northwestern Great Plains (Miscl. Cont. No. 8); Stratigraphic Sections of Upper Paleozoic and Mesozoic Rocks in South-Central Montana.

Water Resources.—*Projects:* Continuation of general ground-water studies.

Others.—*Projects:* Study of mining problems of small mine operators and prospectors; Mineral dressing studies for the beneficiation of Montana ores and nonmetallic minerals. *Publica-*

tions: Metallic Mineral Deposits of Montana (published in cooperation with the U.S.G.S.).

NEBRASKA

Organization.—Conservation and Survey Division, University of Nebraska, Lincoln, Nebraska, Dr. G. E. Condra, Director and State Geologist.

Basic and Economic Geology.—*Projects:* Surface and subsurface stratigraphic studies; Bryozoan studies; Pleistocene stratigraphic studies; Subsurface studies; Oil field studies; Coal deposits stratigraphic study; Mineral resource studies. *Publications:* The Iowan Till in Northeast Nebraska; Two reports on Bryozoa.

Water Resources. — *Projects:* Central and South-central Nebraska counties. *Publications:* Preliminary County Ground-Water Reports (6).

Others.—*Projects:* Soil inspection and correlation work; Conservation and industrial surveys; Soil resurvey Saunders County. *Publications:* Otoe and Lancaster Company Soil Maps; Pre-Pleistocene Map of South-central Nebraska.

NEVADA

Organization.—Nevada State Bureau of Mines, Reno, Nevada, Jay A. Carpenter, Director.

Basic and Economic Geology.—*Projects:* Areal photography and mapping of the area between Ely and Eureka close to the neighborhood of the old famous mining district of Hamilton.

NEW HAMPSHIRE

Organization.—Mineral Resources Committee, New Hampshire State Planning and Development Commission, Durham, New Hampshire, T. R. Meyers, Geologist.

Basic and Economic Geology.—*Projects:* Preparation of report on the surficial geology of New Hampshire; Investigation of alumina-bearing mineral deposits of New Hampshire. *Publications:* Mineralogy of New Hampshire Sands; Till Deposits of New Hampshire.

Water Resources. — *Projects:* Continuation of ground-water studies.

NEW JERSEY

Organization.—Bureau of Geology and Topography, Trenton, New Jersey, Meredith E. Johnson, State Geologist.

Basic and Economic Geology.—*Projects:* Recording of new data on the geology and mineral resources; Investigation of ore genesis and structural relations as exposed in operating mines; Cooperation with Bureau of Mineral Research, Rutgers University, in investigations of industrial sands.

Water Resources. — *Projects:* Study of the ground-water situation in Newark and Harrison; Collection of information on the ground-water resources of the state.

Topographic and Planimetric Mapping.—*Projects:* Sheets 22, 23 and 24 of Topographic Atlas; Geodetic control system. *Publications:* Topographic Atlas Sheets 21, 22 and 23.

NEW MEXICO

Organization.—New Mexico Bureau of Mines and Mineral Resources, Socorro, New Mexico, E. Carter Anderson, Director.

Basic and Economic Geology.—*Projects:* Geology of the Sangre de Cristo Mountain region; Geology of the Sacramento Mountain region; Investigation of oil field corrosion problems; Secondary recovery problems in the oil fields; Engineering and production data in the oil field; Mineral resources of Colfax and Taos counties; Examination of clay deposits. *Publications:* Geology of the Grand Quivira Quadrangle (Bull. 26); Contributions of New Mexico's Mineral Industry to World War II (Bull. 27); Pumice Aggregate in New Mexico—Its Uses and Potentialities (Bull. 28); Compilation of State Tax Law Relating to Mineral Properties in New Mexico (Circ. 13); Oil and Gas Production Data, Eddy County, New Mexico (Circ. 14); Tables of Fluorescent and Radioactive Minerals (Circ. 15); New Mexico Oil and Gas

Production Data for 1946 (Exclusive of Lea County. Circ. 16).

Water Resources. — *Projects:* Ground water resources of Colfax County, San Miguel County and Eddy County.

Others.—*Projects:* Tables of fluorescent and radioactive minerals and their behavior under various lights; Compilation of state laws relating to mineral properties in New Mexico; Annual reports. *Publications:* Annual Report for the Fiscal Year, July 1, 1945 to June 30, 1946; Annual Report for the Fiscal Year, July 1, 1946 to June 30, 1947.

NEW YORK

Organization.—New York State Science Service, Office of the State Geologist, Albany, New York, Dr. John G. Broughton, Acting State Geologist.

Basic and Economic Geology.—*Projects:* Structural geology of Otsego County; Branch office established at Wellsville, New York; Collecting well data and carrying on geophysical and geological research; Magnetic survey of Adirondack region; Economic geology of Niagara dolomites. *Publications:* The Clinton of Western and Central New York (Bull. 341); Cayugoceras, an Upper Silurian Cephalopod; Holochoanites are Endoceroids; New Ordovician Nautiloids from New York; Iron Mining Comes of Age in New York State.

NORTH CAROLINA

Organization.—Mineral Resources Division, North Carolina Department of Conservation and Development, Raleigh, North Carolina, Dr. Jasper L. Stuckey, State Geologist.

Basic and Economic Geology.—*Projects:* Review of mineral industry 1936-1945; Oil possibilities; Coastal Plain of North Carolina; Exploration Deep River Coal Field; Light-weight aggregate resources of North Carolina; Pegmatite resources, Bryson City area, North Carolina; Talc deposits of North Carolina; Scrap mica resources of North Carolina; Barite deposits of North Carolina. *Publications:* The Geology and Mineral Resources of Guilford County (I.C. No. 6).

Water Resources. — *Projects:* Ground-water survey of North Carolina. *Publications:* Ground-water in the Neuse River Basin (I.C. No. 5); A Possible New Source of Groundwater Supply in the Elizabeth City Area, North Carolina.

NORTH DAKOTA

Organization.—North Dakota Geological Survey, Grand Forks, North Dakota, Dr. Wilson M. Laird, State Geologist.

Basic and Economic Geology.—*Projects:* Geology of the Tokio Quadrangle; Eocene of North Dakota; Study of well samples; Lignite compilation; Sodium sulphate deposits; Cement rock and limestone investigation. *Publications:* Geology of the Flora Quadrangle (Bull. 22).

Water Resources. — *Projects:* Ground-water studies at Wimbledon, New Rockford, Zeeland, Cavalier, Sharon, Aneta, Hope, Portland, Minot, Mohall, Flaxton, Michigan, Kindred, Wyndmere and Litchville, North Dakota; Observation well studies; Cooperation with Missouri Basin ground-water studies. *Publications:* Ground-water Near Buxton; Ground-water of Fargo-Moorhead Area; Ground-water in Deposits of Ancient Lake Dakota, Dickey County, North Dakota.

OHIO

Organization.—Geological Survey of Ohio, Columbus 10, Ohio, John H. Melvin, State Geologist.

Basic and Economic Geology.—*Projects:* Monongahela formation; Coshocton County; Perry County; Lucas County; Holmes County; Athens County; Hocking County; Collecting well logs; Examination of cuttings; Washing and filing cuttings; Mapping; Mapping coal outcrops; Limestones of eastern Ohio; Sharon conglomerate; Mapping mineral industries. *Publications:* Geologic Interpretation of Scenic Features in Ohio (Reprint 3); Generalized Section of Rocks in Ohio (I.C. No. 4); Waynesburg Coal in Harrison and Northern Belmont Counties, Ohio, and Revision of Dunkard (Permian) Boundary (R.I. No. 1); Geologic Section of Chillicothe Test Core (R.I. No. 2); Ohio's Place in Mineral Industry in 1945; Limestones of Eastern Ohio; Sharon Conglomerate.

Others.—*Publications:* Reprinting of Geologic Map of Ohio; Mineral Industry Map of Ohio; Geologic Map of Holmes County; Maps showing outcrop and extent of Meigs Creek coal in Cumberland and Caldwell Quadrangles, accompanied by section.

OKLAHOMA

Organization.—Oklahoma Geological Survey, Norman, Oklahoma, Robert H. Dott, Director.

Basic and Economic Geology.—*Projects:* Revision of state geologic map; Geology and mineral resources, Tulsa County; Stratigraphy and areal geology of Arbuckle group; Cambro-Ordovician Arbuckle Mountains, south-central Oklahoma; Subsurface structure map of state; Manuscript on Haskell County; Manuscript on northern LeFlore County; Black sands (titaniferous magnetite) of Wichita Mountains; Royer dolomite—mapping central Arbuckle Mountains; Floating properties—volcanic-ash; Clays. *Publications:* Morrow series (Bull. 66).

Water Resources. — *Projects:* Beaver, Grady, Ottawa counties; Observation well program; Miscellaneous pumping tests and service calls.

OREGON

Organization.—Oregon State Department of Geology and Mineral Industries, Portland, Oregon, F. W. Libbey, Administrator.

Basic and Economic Geology.—*Projects:* Geologic map of Dallas and Valsetz quadrangles; Micro-fossil study of Tertiary formations; Study of nickel-bearing laterites in southwestern Oregon; Investigation of saline deposits in Lake County; Study of common brick clays. *Publications:* Mines and Prospects of the Mt. Reuben District, Josephine County (Bull. 34); Sodium Salts of Lake County, Oregon (GMI Short Paper 17); Bibliography of Geology and Mineral Resources of Oregon (Bull. 33).

Water Resources. — *Projects:* Collection of water-well data in northeastern Oregon.

Others.—*Projects:* Study of samples for radio-activity.

PENNSYLVANIA

Organization.—Bureau of Topographic and Geologic Survey, Harrisburg, Pennsylvania, Stanley H. Cathcart, Director.

Basic and Economic Geology.—*Projects:* Stratigraphy of the Cambrian, Ordovician, and Silurian systems exposed in central Pennsylvania; Geology of Bucks County; Aerial geology of the Philadelphia district; Guidebook to the geology in the vicinity of Philadelphia; Guidebook to geology along the Pennsylvania Turnpike, with supplements on tunnel geology and ground-water; Geology of southeastern Clearfield County; Subsurface stratigraphy of western Pennsylvania; The Butler Quadrangle; The Smethport Quadrangle; The Haskell Sand, McKean County; The McDonald Pool; Areal geology of New Florence Quadrangle; Iron-manganese ores of South Mountain; High-alumina clays of Cameron and Clinton counties. *Publications:* Manganese Minerals of Pennsylvania (Bull. M27); Oil and Gas Developments in the North Strabane Area (Bull. M28); Haskell Sand Core from the Coryville Pool, McKean County (P.R. 131); Geology and Mineral Resources of the Smicksburg Quadrangle (A-55).

Water Resources. — *Projects:* Detailed study of the Philadelphia District; Detailed study of the Pittsburgh District.

Topographic and Planimetric Mapping. — *Projects:* Norristown, Germantown, Colegrove, Emporium, Short Run, Galeton quadrangles. *Publications:* Glen Richey, Ramey, Wallaceton, Houtzdale, Cameron, Driftwood, First Fork, Sinnemahoning, Sky Top, East Stroudsburg, Bushkill, Twelve Mile Pond, Bitumen and Hyner Quadrangles.

Others. — *Publications:* Undrilled area map of Warren Quadrangle; Undrilled area map of southern Kinzua and northern Kane Quadrangles; Farm Line maps of the Butler Quadrangle.

RHODE ISLAND

Organization.—Rhode Island Industrial Commission, Mineral Resources Committee, Providence, Rhode Island, Dr. Alonzo Quinn, Chairman.

Basic and Economic Geology.—*Projects:* Bedrock geology of North Scituate Quadrangle; Surficial geology of North Scituate Quadrangle.

Water Resources. — *Projects:* Ground-water of Pawtucket Quadrangle; Ground-water of Georgiaville Quadrangle.

SOUTH CAROLINA

Organization. — State Geological Survey, Columbia, South Carolina, Dr. Lawrence L. Smith, State Geologist.

SOUTH DAKOTA

Organization.—South Dakota State Geological Survey, Vermillion, South Dakota, Dr. E. P. Rothrock, State Geologist.

Basic and Economic Geology.—*Projects:* Structure in Fall River County: Structure in Haakon County; Granite appraisal; Quartzite appraisal.

Water Resources. — *Projects:* Water level fluctuations in eastern South Dakota. *Publications:* Ground-water resources of the Sioux Falls area (R.I. 56); Ground-water fluctuations in eastern South Dakota (R.I. 59).

Others.—*Publications:* Nonmetallic Economic Products in South Dakota.

TENNESSEE

Organization.—Tennessee Division of Geology, Nashville, Tennessee, H. B. Burwell, State Geologist.

Basic and Economic Geology.—*Projects:* Geologic mapping of Great Smoky Mount in National Park area; Geologic mapping in west Tennessee; Stratigraphic and structural mapping of complex structure in east Tennessee; Subsurface stratigraphy and structure throughout Tennessee; Coal study with attendant detailed mapping; Mapping phosphate reserves. *Publications:* Barite, Fluorite, Galena, Sphalerite, Veins of Central Tennessee (Bull. 51); Geology of Nashville (Bull. 53); Geology and Mineral Deposits of Bumpass Cove, Unicoi and Washington Counties, Tennessee (Bull. 54); Pre-Chattanooga Stratigraphy in Central Tennessee (Bull. 55); Geology of the Carters Creek and Godwin Quadrangles; Subsurface Stratigraphy of Pickett and Northern Fentress Counties, Tennessee.

Water Resources. — *Projects:* Stream gaging in cooperation with U.S.G.S.; Ground-water study in cooperation with the U.S.G.S.

TEXAS

Organization. — Bureau of Economic Geology of the University of Texas, Austin, Texas, Dr. John T. Lonsdale, Director.

Basic and Economic Geology.—*Projects:* Geology of the Christmas Mountains; Catalog of Cretaceous Foraminifera; Geologic surveys in Trans-Pecos Texas; Pleistocene deposits of High Plains; Carboniferous rocks of the Llano region; Ellenburger group in central Texas; Iron ore in the Llano region, central Texas; Mineral resources of the Trinity River tributary area; High grade clay in the Cisco group, north Texas; High grade clay in east Texas; Glass and industrial sands in north Texas. *Publications:* Building Stones of Central Texas (Pub. 4246); The Ellenburger Group of Central Texas (Pub. 4621); Geological Resources of the Trinity River Tributary Area in Texas and Oklahoma; Iron Ore in the Llano Region, Central Texas (R.I. 2); The Carboniferous Rocks of the Llano Region of Central Texas (Pub. 4329); High-Grade Clay in Cisco Group, North Texas; The Geology of Texas, Vol. I, Stratigraphy (Bull. 3232).

VERMONT

Organization.—Vermont Geological Survey, Burlington, Vermont, Dr. Charles G. Doll, State Geologist.

Topographic and Planimetric Mapping.—*Projects:* Jay Peak, Irasburg, Enosburg Falls and Londonderry quadrangles.

Others.—*Publications:* Report of the State Geologist on the Geology and Mineral Industries of Vermont.

VIRGINIA

Organization.—Geological Survey Division of Virginia Conservation Commission, Charlottesville, Virginia, William M. McGill, State Geologist.

Basic and Economic Geology.—*Projects:* Outline of the geology and mineral resources of Smyth County; Geology and mineral resources of the Lynchburg Quadrangle; Geology and mineral resources of Clarke and Frederick counties; Geology and mineral resources of the Lovingston Quadrangle; Geology of the Blue Ridge in central Virginia; Geology and mineral resources of the Vesuvius Quadrangle; Geology and oil possibilities of the Ben Hur district, Lee County; Geology and oil resources of the Rose Hill district, Lee County; Geology of the Valzinco district, Spotsylvania County; Geology and mineral resources of the Gossan lead district and adjacent areas; Industrial limestones and dolomites in the James River basin west of the Blue Ridge; Mica deposits; Piedmont marble belt. *Publications:* Commercial Granites and Other Crystalline Rocks in Virginia (Bull. 64); Industrial Limestones and Dolomites in Virginia; Northern and Central Parts of Shenandoah Valley (Bull. 65); A Tectonic Intrusion of Shale in Rockbridge County, Virginia (Repr. Ser. 14); The Catoctin Formation in Central Virginia (Repr. Ser. 15).

Water Resources. — *Projects:* Ground-water resources in the Roanoke area; Geology and ground-water resources of the York-James peninsula; Geology and ground-water resources of the Coastal Plain in northeastern Virginia. *Publications:* Chemical Character of Ground-water in the Coastal Plain of Virginia (Bull. 68); Genesis of Ground-waters in the Coastal Plain of Virginia (Repr. Ser. 13).

Topographic and Planimetric Mapping.—*Projects:* The following quadrangles: Boone Mill, Broadway, Callaghan, Clifton Forge, Dillons Mill, Edinburg, Fort Seybert, Goodes, Goshen, Leesville, Moneta, New Canton, Peaks of Otter, Radford Strasburg, Waiteville, Warm Springs and Williamsville.

Others. — *Publications:* Publications on the Geology and Mineral Resources of Virginia (Circ. 6); Geologic map and structure sections of the Rose Hill District; Detailed geologic map and structure sections of the Fenster Area of the Rose Hill District, Lee County, Virginia.

WASHINGTON

Organization.—Division of Mines and Geology, Olympia, Washington, Sheldon L. Glover, Supervisor.

Basic and Economic Geology.—*Projects:* Collecting and supplying highly varied information, chiefly of economic nature; Giving aid to exploration companies; Compiling history of exploration; Giving aid to coal operators; Investigation of antimony occurrences throughout the state; Preparation of spot maps with brief details and references covering all known metallic mineral occurrences in state; Preparation of directory of operators; Study of all saline deposits in state; Investigation of perlite and occurrences of obsidian; Preparation of spot maps with accompanying brief details and references covering all known nonmetallic resources; Preparation of directory of operators. *Publications:* 1947 Directory of Mining Operations (I.C. No. 13); Excerpts from "Washington Fuel Requirements and Supplies" (I.C. No. 14); Oil and Gas Exploration in Washington (I.C. No. 15); Coal and Coal Mining in Washington (R.I. No. 4R).

WEST VIRGINIA

Organization.—West Virginia Geological and Economic Survey, Morgantown, West Virginia, Dr. Paul H. Price, State Geologist.

Basic and Economic Geology.—*Projects:* Geologic Gazetteer; Stratigraphy of Greenbrier limestone; Roof strata of coal seams; Composition and properties of petroleum in West Virginia (Part II), Gas analyses; Dolomitic zone at base of Greenbrier limestone; Core analyses; Possibility of shaft mining Greenbrier limestone.

Water Resources. — *Projects:* Cooperative studies with U.S.G.S. *Publications:* Ground Water Conditions at Charleston, West Virginia (R.I. No. 2).

Others.—*Projects:* Spectrographic analysis of coal ash; Well sample studies. *Publications:* Analyses of West Virginia Brines (R.I. No. 1); Composition and Properties of Petroleum in West Virginia (R.I. No. 3, Part I); Future of Oil in West Virginia; Clays of West Virginia—Volume XVIII.

WISCONSIN

Organization.—Wisconsin Geological and Natural History Survey, Madison 6, Wisconsin, E. F. Bean, State Geologist.

Basic and Economic Geology.—*Projects:* Lead and zinc investigation in cooperation with the U.S.G.S.

Water Resources. — *Projects:* Ground water surveys in progress.

Topographic and Planimetric Mapping.—*Projects:* Areal mapping in cooperation with the U.S.G.S. *Publications:* Planimetric maps of Ashland, Iron Lake, Mokuah and Granview.

Others.—*Projects:* Soil surveys in progress in Longlade, Barron and Richland counties.

WYOMING

Organization.—Geological Survey of Wyoming, Laramie, Wyoming, Dr. Horace D. Thomas, State Geologist.

Basic and Economic Geology.—*Projects:* Pre-Cambrian geology of the Laramie Mountains; Stratigraphy and paleontology of the Tertiary North Park formation; Geology of the Labonte area, Laramie Mountains; Geology of the Broadway lead and zinc claims; Pumice occurrences in the Leucita Hills; Cordierite in the Laramie Range. *Publications:* Stratigraphic Sections of Mesozoic Rocks in Central Wyoming (Bull. 38).

Water Resources. — *Projects:* Geology and ground-water resources of the Ranchester area; Geology and ground-water resources of the Glendo area.

Others.—*Publications:* Map of Goshen County, Wyoming, showing possible commercial deposits of sand and gravel.

RECLAMATION AND IRRIGATION

By Michael W. Straus

Commissioner, Bureau of Reclamation, Department of the Interior

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SCOPE AND VALUE OF RECLAMATION WORK

Water brought to arid and semi-arid lands in the 17 western states through irrigation works constructed by the Bureau of Reclamation in 1946 supported 94,000 farm families and was the basis of agricultural, commercial, and industrial activity of 1,400,000 persons in the reclamation areas.

The total gross value of irrigation crops on Bureau of Reclamation serviced lands in 1946 was $530,623,945, an increase of 21.9 per cent over 1945. The average gross value per acre was $120.69. In addition, other agricultural wealth in the form of cattle, sheep, poultry, eggs, butterfat, and similar products had an estimated value of some $150,000,000.

Works which had been constructed

by the Bureau of Reclamation brought a full or supplemental supply of irrigation water to 4,321,969 acres in 1946. This land was once desert, or in sagebrush, or dry-farmed, and it has been either reclaimed by the irrigation works, or provided with an adequate supply of water to supplement other available resources.

In the 45 years since the Bureau of Reclamation began operations, 100 storage dams and 68 diversion dams have been built in these western areas, with a reservoir capacity of 67,897,248 acre-feet. The Bureau has also built almost 16,000 miles of canal structures, and 335 tunnels with a total length of 566,000 feet.

The installed capacity of 32 power plants operated on Reclamation projects was 2,295,487 kilowatts as of July 1, 1947. Power sales in fiscal year 1946 were 11,500,000,000 kilowatt-hours, sufficient to light up 20 cities the size of Denver. The Bureau also operates more than 2,500 miles of transmission lines of various voltages to carry the power to market centers. Power development is not only needed in many cases to pump irrigation water, but the sale of surplus hydroelectric power is a major factor in meeting the growing needs of the West for energy and in reimbursing the United States Government for construction costs allocated to power, and in the cost of irrigation works which are in excess of the repayment ability of the water users. Repayment of funds advanced by the Federal Government to build Reclamation works comes primarily from water users and power users.

Collateral benefits arising from multiple-purpose river basin development, which is basic to Reclamation activity, include flood control, navigation improvement, sedimentation control, salinity repulsion, provision of domestic water supplies, fish and wildlife conservation, and recreational facilities.

CUMULATIVE BENEFITS

The cumulative value of crops grown on Reclamation-serviced lands from start of irrigation operations in 1906 to the end of 1946 was about $5,000,000,000. This is almost five times the total amount spent on Reclamation works, including those still under construction, since the program started upon passage of the Reclamation Act in 1902.

Several of our greatest American cities in areas with light precipitation would virtually pass out of the economic picture without the water supply they hoard carefully for irrigation, municipal uses, and hydroelectric power. Such cities as Los Angeles, Salt Lake City, Phoenix, and Denver are dependent upon careful conservation and judicious development of available water resources. Hundreds of other cities, towns and villages in the West, and thousands of farms look to development and operation under the Reclamation laws and supplemental legislation for maintenance of their present prosperous existence.

The spectacular population growth of the West, far ahead of the national rate in recent years, has a definite limiting factor in the availability of water. At the same time, development of the water resources makes possible the development of western agriculture, commerce, and industry.

On Federal reclamation areas—the irrigated agricultural sections and the towns among them—there were 1,057 schools, 1,668 churches, and 149 banks serving the population in 1946.

1947 CONGRESSIONAL APPROPRIATIONS

During calendar year 1947 the Congress provided $93,367,038 for the Bureau of Reclamation in the regular annual appropriation act. Later, the Congress voted a supplemental appropriation of $6,500,000, which included $6,400,000 for initiation and continuation of construction on dams in the Missouri River Basin to speed the realization of the flood control values inherent in Reclamation structures.

Repayment of the irrigation features of Reclamation construction was underway through approximately 300 contracts with water users or their organizations, and through application of power revenues. Repayments are in excess of 97 per cent of the amount due.

HOMESTEAD PROJECTS FOR VETERANS

More than 25,000 acres of public lands were opened to homestead entry in 1947 with Second World War veterans given preference by statutory regulations for these irrigated farm lands. Openings were held on the Shoshone Project in Wyoming, Yakima Project in Washington, Minidoka Project in Idaho, Riverton Project in Wyoming, Yuma Project in Arizona, Owyhee and Vale Projects in Oregon, and Gila Project in Arizona. Almost 400 farms were made available for settlement.

The demand for agricultural land in the West was indicated by the number of inquiries received for these openings—ranging as high as 300 inquiries for each available farm. Public drawings were held from among qualified veterans to determine who should have the opportunity to gain entry rights.

During 1946, irrigation water was made available on eight new projects and a new division of another project, totaling 31,243 acres. Among these was the W. C. Austin Project in Oklahoma, the easternmost Reclamation project. A survey showed that crop values on irrigated lands in this subhumid area increased to $130.72 per acre, compared to a crop value of $22.09 per acre on dry-farmed lands nearby.

POWER REVENUES

Reclamation-marketed power, surplus to irrigation pumping and similar operating needs, and incidental to river regulation and flood control, produced revenues of approximately $21,000,000 during 1946, which were applied not only to reimbursement of the Federal Treasury of principal and interest for the cost of constructing the power installations, but also toward repayment of parts of the cost of irrigation features which are beyond the ability of water users to pay.

General investigations of the remaining 21,000,000 acres of arable western lands which might feasibly be irrigated with the available water supply were continued on a reduced scale after July 1, 1947, in accordance with appropriations for this purpose, and one interim basin-wide report, on the Colorado River Basin, was sent to the Congress. A basin-wide report for long-range development of the Columbia River Basin was submitted to the affected states for review and comment. Several sub-basin and individual project reports also were completed.

CONTRACT AWARDS AND PROGRAMS

During the fiscal year ended June 30, 1947, more than 3,000 contracts totaling over $125,000,000 were awarded to contractors, construction material suppliers, and equipment manufacturers by the Bureau of Reclamation. For the fiscal year ending June 30, 1948, a construction work program amounting to $158,000,000 of available funds, was adopted in August 1947. This program, including the special Missouri River Basin projects for which the Congress provided supplemental funds to speed construction, was intended to provide or carry on construction which would bring full or supplemental water supplies during 1948 to 192,000 acres comprising 2,000 farms, including 50,000 acres to be opened for homestead entry by war veterans; installation of 489,000 kilowatts of hydroelectric power capacity, and other stream development benefits such as flood, salinity, silt control, fish and wildlife and recreation.

A program for succeeding years to 1954, geared to economical engineering and construction and designed to meet, in so far as possible, needs of the West, was drafted for presentation, to carry on uncompleted construction which has been authorized by the Congress. This contemplates both full and supplemental water supplies for 4,355,000 additional acres of land comprising 48,400 farms and installation of 2,250,000 kilowatts of hydroelectric power capacity by 1954.

YAKIMA AND OTHER PROJECTS

The Tieton Division of the Yakima Project in Washington, largely an orchard area, completed repayment of its construction charges to the Federal Government ahead of schedule and became the first major division of a project to accomplish full repayment.

Construction was begun on several large dams and a number of smaller structures. Included were the Enders Dam in Nebraska, Boysen Dam in Wyoming, and Tracy Pumping plant in the Central Valley of California. Construction continued on principal structures and works.

Transfer of Pacific slope waters to Atlantic side lands for irrigation occurred June 23, 1947, when Colorado river water caught and stored in Grand Lake Reservoir was first turned into the 13-mile long Alva B. Adams under the Continental Divide and emerged three hours later on the Big Thompson River slope. The tunnel was completed in 1946.

MISSOURI RIVER BASIN

Development of the Reclamation portion of the Missouri River Basin program received an impetus during 1947 when the Congress provided $6.400.000 in supplemental funds to initiate and continue construction on several dams so as to bring their flood control benefits into realization more speedily than regular appropriations would permit.

Construction was started during the fiscal year 1947 on Enders Dam in Nebraska and on Boysen Dam in Wyoming. Contracts were initiated for construction of Heart Butte Dam in North Dakota and Medicine Creek Dam in Nebraska, and preconstruction contracts were initiated on Canyon Ferry Dam and Moorhead Dam in Montana, Shadehill Dam and Bixby Dam in South Dakota, Cannonball Dam in North Dakota, and Keyhole Dam in Wyoming. In addition, construction was continued on two other Missouri Basin dams; Kortes Dam and power plant in Wyoming, and Angostura Dam in South Dakota.

The Missouri River Basin development contemplates bringing irrigation water to 5,560,000 acres of land that are not now irrigated, and to 560,000 acres of irrigated land at present insufficiently supplied with water. Hydroelectric power capacity, including installations at Army-built dams whose power will be marketed by the Bureau of Reclamation, will be increased by 1,600,000 kilowatts in the ultimate development. Other Basin developments include extensive flood control and navigation improvements by the Army Engineers, and municipal water, recreation, fish and wildlife conservation, and similar collateral benefits.

The comprehensive coordinated program was authorized by the Congress in the Flood Control Act of 1944 and 1946 on the joint recommendations of the Bureau of Reclamation and the U. S. Corps of Engineers.

COLUMBIA BASIN

The Columbia Basin Project in central Washington is designed to bring about 1,000,000 acres of fertile, arid lands to irrigated cultivation by using the waters stored back of Grand Coulee Dam. The project entails lifting the water 250 feet from the reservoir to the top of bluffs to the south, by giant pumps, at the rate of 7,000,000 gallons a minute, into a 27-mile equalizing reservoir created in Grand Coulee by placing earthen dams at each end, and then distributing the water by means of siphons, tunnels, and canals, to the irrigation area 50 to 100 miles to the south. An additional reservoir within the irrigation area, created by Potholes Dam, will control and re-distribute the water.

Construction during 1947 was active on the South Coulee Dam, a two-mile long earth and rock-fill structure, on Potholes Dam, and on siphons and tunnels connecting the main canals with the equalizing reservoir.

Bacon Tunnel, under construction, will be two miles long and 23 feet in diameter. Bacon Siphon will be 1,020 feet long, 23 feet in diameter. The Columbia Main Canal, under construction, will transport water from the Grand Coulee equalizing reservoir through the Bacon Tunnel and Bacon Siphon. The portion under construction will be 20 to 48 feet deep and from 95 to 200 feet in width. It will have a carrying capacity of 9,700 second-feet.

At the same time, additional generating capacity was brought into service at the Grand Coulee Dam power plant to help ease the power shortage in the Pacific Northwest. At the end of 1947, seven 108,000 kilowatt-capacity and two service generators were in operation, and installation of two more generators in the left powerhouse was underway. Three generators had been ordered for the right powerhouse, and turbines for three additional generators were being placed under contract. The ultimate capacity of Grand Coulee powerhouse when all generators are in service will be 2,190,000 kilowatts, making it the largest power plant in the world.

The Columbia Basin Project ultimately will be one of the development projects in the Columbia River drainage basin upon authorization of the basin-wide program submitted by the Bureau.

CENTRAL VALLEY OF CALIFORNIA

The Central Valley of California, a long-established agricultural area of rich production, has been faced for many years with a constantly diminishing water supply. The situation has become progressively acute with influx of new population in recent years. In addition, a power shortage of considerable proportions has developed.

The Bureau of Reclamation has undertaken a series of coordinated construction projects to provide dependable and sufficient supplies of water, produce electric power, and bring such other benefits as flood reduction improvement in river navigation, repulsion of saline waters from delta lands, and conservation of fish and wildlife. The more than 2,000,000 acres of rich farm lands in the 400-mile long valley are dependent, for the most part, on irrigation.

Shasta Dam, constructed near the headwaters of the Sacramento River, impounds floods created by melting snows in the mountains and transforms the water into electric energy at a 379,000 kilowatt hydroelectric power plant. The Shasta reservoir and the reregulation provided by Keswick Dam downstream, affords river control which also is designed to aid navigation and flush out the sometimes salty channels in the river delta. Reservoir releases also will provide fresh water for pumping from the delta to other areas in the valley. By means of the Delta-Mendota canal, Sacramento River water will be used to irrigate lands in the San Joaquin River Valley as far as Mendota to serve lands which are now irrigated from the San Joaquin River. The exchange will make possible the storage of San Joaquin River water behind Friant Dam, at the southern end of the valley, for diversion into the Friant-Kern and Madera Canals serving an area in critical need of supplemental irrigation water.

The Sacramento River water also will be used to carry added irrigation potential to lands between San Francisco and Stockton, by means of the Contra Costa Canal. In all, some 400 miles of main canals are to be constructed. Approximately 75 miles of the 160-mile long Friant-Kern Canal were under construction in 1947; 10 miles of the 47-mile long Contra Costa Canal; and 24 miles of the 120-mile long Delta-Mendota Canal. The 37-mile-long Madera Canal was completed in 1945.

Installation of two generators at the Shasta power plant, which had been loaned to Grand Coulee to help supply power for war industries in the Pacific Northwest, was near completion as the year ended. Additional generating capacity at Keswick Dam was under installation, and construction of a main transmission line to provide an outlet for this power was underway.

BIG-THOMPSON OF COLORADO

Diversion of Colorado River waters through the Rocky Mountains to the eastern slope before completion of the project works was made on a temporary basis to meet an acute need for irrigation water in the Big-Thompson Valley of Colorado. Irrigators provided a temporary pipe line to carry the waters from the Adams Tunnel to their irrigation ditches. Meanwhile, construction continued on Horsetooth Reservoir on the eastern side, near Fort Collins, Col., which will provide storage for the trans-mountain water until needed for irrigation. This reservoir will be formed by construction of four earth-fill dams and Satanka Dike. Work also was underway on Granby Dam, an 885-foot earth-fill structure 232 feet high on the Colorado River near Granby, Col. It will provide storage for 482,000 acre-feet of water, to be used for diversion through the Adams Tunnel. Rams Horn and Prospect Mountain Tunnels on this project will carry the diverted water down from the mouth of the Adams Tunnel to the eastern irrigation areas. Rams Horn will be 1.3 miles long and 10 feet in diameter. Together with Aspen Creek Siphon, a 10-foot 9-inch diameter conduit connecting with the east end of the Adams Tunnel, they will form a part of Power Canal No. 1, which terminates at Estes Park Power Plant, under construction at Estes Park, Col.

ANDERSON AND OTHER DAMS

Anderson Ranch Dam on the South Fork of the Boise River, Idaho, will be the highest earth-fill dam in the world, rising 456 feet above bedrock. It will be 1,350 feet long. The reservoir capacity will be 500,000 acre feet. The ultimate power plant will have 40,500 kilowatt capacity. Work on this dam was temporarily halted during the year because of lack of funds, but resumption of operations brought it to completion.

Cascade Dam, on North Fork of Payette River, near Cascade, Idaho, will be an earth- and rock-fill dam 785 feet long and 107 feet high, impounding 700,000 acre-feet of water.

Davis Dam, on the Colorado River 35 miles west of Kingman, Ariz., will be an earth- and rock-fill structure 1,600 feet long and 138 feet high, with storage capacity of 1,820,000 acre-feet of water. A power plant will have capacity of 225,000 kilowatts. Construction continued during 1947, with a completion date of 1950 set by the Mexican Water Treaty, which provides for release of Colorado River waters to Mexican lands.

COACHELLA CANAL

Coachella Canal, a branch of the All-American Canal in Southern California which taps waters released from Hoover Dam and Imperial Dam on the Colorado River, will be 125 miles long. About 117 miles have been completed. It will serve 75,000 acres of irrigated lands in the Coachella Valley to the north of Imperial Valley, which is now served by the All-American Canal.

DUCHESNE TUNNEL

Duchesne Tunnel, on the Provo River Project in Utah, about 30 miles northeast of Deer Creek Reservoir, will be six miles long and will divert irrigation water from upper tributaries of the Duchesne River. Salt Lake Aqueduct, on the Provo River Project will be 41 miles long and will tap Deer Creek Reservoir to provide industrial and domestic water supplies in Salt Lake City and also serve irrigation needs.

NEED FOR RECLAMATION

Since lands in the 17 western states, except for some coastal and high mountain areas, have scanty rainfall, resort to river waters which are fed by melting snows in the mountains has been made almost since men first began to settle there, to sustain life and develop agriculture. Most areas have less than 20 inches of rain a year, compared to 40 to 50 inches in eastern states, and many sections have less than 10 inches, and some as low as two or three inches. Transformation of the desert areas, which are fertile but can not yield sustenance for modern civilization without sufficient water, is the basis of Western growth and development.

PUBLIC LANDS

By Fred W. Johnson

Director, Bureau of Land Management, Department of the Interior

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ADMINISTRATIVE REORGANIZATION

Kaleidoscopic changes in plans and procedures to meet increased world demands for natural resource development marked the advancement in public land administration during the 1947 fiscal year. In activities centered upon maximum beneficial use of the Nation's land, forage and water, timber and minerals, the President, the Congress, and the Department of the Interior took official steps to integrate the program for more efficient management of the 778,000,000 acre public domain in the United States and Alaska. On July 16, 1946, orders were promulgated establishing the Bureau of Land Management in the Department of the Interior through consolidation of the General Land Office and the Grazing Service in accordance with Reorganization Plan No. 3 of 1946.

Localized handling of public land problems was provided through regional offices maintained by the Bureau at the following points: Region No. 1, encompassing the States of Idaho, Oregon and Washington, with headquarters at Portland, Oregon; Region No. 2, Nevada, California, with headquarters at San Francisco, California; Region No. 3, Montana, Wyoming, North Dakota, South Dakota, Nebraska, Kansas, Iowa and Missouri, with headquarters at Billings, Montana; Region No. 4, Utah and Colorado, with headquarters at Salt Lake City, Utah; Region No. 5, Arizona, New Mexico, Texas, Oklahoma, Arkansas, and Louisiana, with headquarters at Albuquerque, New Mexico; and Region No. 7, Alaska, with headquarters at Anchorage.

PUBLIC LAND DEVELOPMENT

This trend toward greater efficiency in the field of national economics throws the spotlight of interest upon other cycles in public land history and the part they played in the development of the nation. The first cycle, which began shortly after the birth of the Republic, witnessed the disposal of large areas of the Federal domain for cash with which to meet the costs of the American Revolution, and subsequent government expenditures.

The second cycle began in 1863, when President Abraham Lincoln signed the first homestead law and the cash disposal policy gave way to the era of settlement which carried American civilization westward to the Pacific. The same cycle encompassed the grant of public lands for the beginning of the nation's network of highways and roads, and public school systems.

The fourth cycle was ushered in shortly after the beginning of the Twentieth Century when the consequences arising from decades of generous contributions from the nation's store of public land made necessary a protective policy of natural resource conservation. The soundness of this policy, which was given the effectiveness of a national administration program in 1933, was fully demonstrated in the Second World War, when a greater contribution than ever before was able to be made to the military effort from the land and resources of the United States. It was in order to provide the same effectiveness in meeting the economic problems of the post-war period, that the plan for streamlined procedure was actively set under way in 1947.

It is a unique as well as a particularly fortuitous circumstance of history that the basic administrative structure utilized in today's program is fundamentally the same as that which undertook the management of the Federal public lands after the American Revolution. Chronologically, Federal land administration began with the Ordinance of 1785, largely sponsored by George Washington and Thomas Jefferson, under which the Continental Congress directed the manner by which identification of land in the new Republic should be undertaken and laid down steps for its disposal. In 1812, this responsibility was lodged in a General Land Office set up as a Bureau in the Treasury Department. When the Interior Department was established in 1849, the General Land Office was transferred to that Department.

Thus the valuable asset of more than 160 years of continuous operation and accumulated experience in the handling of public land problems was ready at hand to meet the demands of the present world economic situation. Added to this was the knowledge and skill acquired by the Grazing Service of this Department in administering the approximately 145,700,000 acres of Federal range land.

REVENUES

For many years the General Land Office, prior to its consolidation in the Bureau of Land Management, had been one of the few agencies of the Federal Government whose operations have resulted in revenues in excess of the cost of administration. This record was maintained by the Bureau itself in the 1947 fiscal year, total receipts being $21,012,154, and total expenditures $6,288,030. This surplus of receipts over expenditures out of appropriations represents a ratio of $4.78 for every dollar spent on the operation of the former General Land Office and Grazing Service.

HOMESTEADS

During the year the continued scarcity of housing accommodations in the United States found its reflection in heavy demands, particularly from veterans of the Second World War, for home-making opportunities on the Federal public domain. Overlooking the fact that the good free farm land which was available at the end of the Civil War had practically all passed into private hands many years ago, thousands of persons sought information from the Bureau as to the availability of the public lands for acquisition under the homestead laws.

Except for the farm lands provided through the irrigation program of the Bureau of Reclamation and some portions of the public domain in Alaska, the limited amount of public land suitable for agricultural settlement is indicated by the fact that less than 500 applications for such use throughout the entire United States were approved during the fiscal year.

SMALL TRACTS

The Small Tract Act of 1938 virtually has displaced the original homestead law of Abraham Lincoln's day as the popular method for obtaining public land. Under this law the Secretary of the Interior is authorized to lease or sell not more than five acres of surveyed public land for use as a home, camp, cabin, health, convalescent, recreational or business site. In subsequent legislation, Congress gave veterans of the Second World War preference rights in the filing of applications for such tracts.

Anticipating the demand for this type of land use, the Bureau through various land classification orders made approximately 15,000 acres available for lease in California, an additional 10,000 acres in Arizona, and at the end of the year provided for the utilization of areas in Idaho, New Mexico, Nevada, and Wyoming for small tract lease purposes. Meantime, approximately 7,500 applications and 5,000 leases were handled by the Bureau during the year.

The popularity of this type of public land use was materially increased by the Secretary of the Interior near the end of the 1947 fiscal year through the issuance of regulations authorizing the purchase of a tract under certain conditions after one year's tenancy under a government lease. At the same time its scope was enlarged by legislation which made its provisions applicable to the Territory of Alaska as well as to the public lands on the continent of the United States.

MINERALS, TIMBER, AND OTHER RESOURCES

The public lands of the United States continued to contribute their share of the world's supply of natural resource products during the 1947 fiscal year. Production of petroleum from the public domain, for example, aggregated 64,043,460 barrels, an increase of 7½ per cent over 1946, while the total production of natural gas exceeded 97,500,000 M cubic feet, an increase of 1½ per cent over that of 1946. The production of gasoline and butane from the public lands reached 125,584,258 gallons, a rate of increase of 3.9 per cent.

Proceeds to the Government from the development of these and other mineral resources under government lease aggregated more than $16,200,000 during the 1947 fiscal year.

The economic value of sustained yield forestry management operations —the maintenance of a reasonable balance between the volume of tree-cutting and tree-growing—is becoming increasingly recognized by both private individuals and government agencies concerned with the development and production of the nation's timber resources.

The application of this policy to timber resources on all of the public lands of the United States was authorized in legislation passed by Congress during the 1947 fiscal year. At the same time legislation providing for the sale of other types of materials from the public domain resulted in further increase in the Bureau's workload for the year. Plans for a general sustained yield inventory and the preparation of regulations governing the administration of the new laws were brought near completion at the end of the fiscal period.

Meantime, the 2,500,000 acres of Oregon and California revested railroad grant lands and reconveyed Coos Bay wagon road grant lands in western Oregon continued to afford a striking example of the practical advantages inherent in the sustained yield forestry management program.

With a continuous supply of raw material assured, the sale of timber from the Oregon and California lands reached an all-time high, the 517,296,000 board feet sold being valued at more than $3,500,000 or twice as much return to the Government as in the 1946 fiscal year.

ALASKA LAND PROGRAM

Pursuant to the national policy of utmost cooperation in the development of land settlement opportunities and the expansion of industry in Alaska, activities of the Bureau were centered upon an integrated program containing the following highlights of achievement:

Special crews of surveyors and land experts were engaged during the Alaska field season in conducting investigations looking to the maximum beneficial use of the land and its resources.

Special studies were completed on the possibilities for settlement by groups of individuals in Alaska, and new regulations authorizing such settlement were approved by the Secretary of the Interior.

A report on a study of the areas in Alaska best suited for agricultural settlement was prepared, and a comprehensive cadastral survey program, which included the measurement of more than 12,000 acres in 12 separate tracts for lease or sale under the Federal Small Tract Act, was set under way.

Foremost among the Bureau's achievements was the preparation of official public land orders which, becoming effective shortly after the close of the 1947 fiscal year, opened large areas of land in Alaska to settlement by veterans of the Second World War. One of these lifted the restrictions formerly placed upon lands adjacent to the Alaska Highway and made available approximately 2,750,000 acres of public land available for settlement under the public land laws. Another opened approximately 45,000 acres of public land in the Matanuska Valley to homesteading.

RANGE MANAGEMENT

A total of 8,784,327 livestock was authorized on the Federal range by license or permits during the year. This is a net reduction of 49,632 cattle, 11,041 horses, 539,201 sheep, and 13,555 goats, as compared to the 1946 fiscal year. The number of licensed operators decreased from 21,000 to 20,960.

AREA OF THE PUBLIC LANDS

The area of public land remaining in Federal ownership, including Indian trust and tribal lands, as of June 30, 1947, amounted to about 413,000,000 acres in the public land states and about 365,000,000 acres in Alaska. Approximately 434,000,000 acres of these public lands were vacant, unappropriated, and unreserved as follows: 37,000,000 acres in the states outside of Federal grazing districts; 132,000,000 acres within such districts; and 265,000,000 acres in Alaska. During the year, 729,000 acres were withdrawn for various public purposes, while withdrawals reserving 20,235,000 acres were revoked.

Of the approximately 778,000,000 acres remaining in Federal ownership in the states and Alaska, 117,000,000 acres in the states and 363,000,000 acres in Alaska were still unsurveyed as of June 30, 1947.

PUBLIC UTILITIES

By H. M. Olmsted
Public Utility Engineer-Accountant

GENERAL

The demand for public utility services in 1947 continued to increase, resulting in further all-time records of production in the electric light and power field, accompanied by a threat to the sufficiency of generating capacity; occasional shortages in supply of natural and manufactured gas; a huge backlog of still unfilled orders for telephones; and heavy loads on transportation and various other utilities. Labor in public utility industries continued to be restive, but with less disturbance to continuity of service than in 1946. Increased costs of labor and material contributed to a considerable and frequently successful movement for rate increases, particularly as to manufactured gas, telephones, and transportation. Atomic energy as a potential additional source of electric power remained in the experimental stage without apparent danger to the usefulness of existing installations. The balance between public and private enterprise in utility fields kept comparatively stable, with a rather small extension of public ownership.

ELECTRIC LIGHT, POWER OUTPUT AND CONSUMPTION

The 1947 curve of weekly electric output, compiled by the Edison Electric Institute, was at all times above that for 1946, and except for a few specific weeks was above the wartime level of 1944. The record high of 4,940,453,000 kilowatt-hours in the week ended Dec. 21, 1946 was exceeded in September, and by the week ended Dec. 20 a new high of 5,367,624,000 kwh was attained. The weekly figures, for the country as a whole, were then running nearly 9 per cent above 1946. The west-central states showed the largest increase, about 12 per cent above the period a year ago.

New residential and farm customers were being added at a rapid rate, with the prospect of an increase nearly equal to that of 1946, when 2,109,218 customers were added, according to the EEI. The first eight months of 1947 were reported to have brought 1,268,000 new connections, of which 435,000 were farms, making a total of 3,771,000 farms supplied from electric lines. This number was given as 64 per cent of all farms, and it was predicted that this percentage would rise to 67 per cent by the end of 1947. Somewhat over half are served by privately owned companies and the remainder by Rural Electrification Administration cooperatives, municipal systems, or other public bodies.

In October it was estimated that reserve capacity, which was about 12 per cent above peak demand in 1946, according to the EEI, would drop to 7 or 8 per cent in 1947, with occasional necessity on some power systems to cut off interruptible loads for brief periods. By December it appeared that the peak demand would rise to 49,500,000 kilowatts, with dependable capacity placed at 49,600,000 kw by the Federal Power Commission. The rising demand for electrical energy was attributed to various factors, including a large increase in customers and in customer usage, greater electrification of industry, and relatively low cost of energy.

In the Pacific Northwest, where a shortage of capacity *vs.* demand was feared, the situation was helped by the addition at Grand Coulee, huge Washington hydro plant in the Bonneville power system of the Federal Government, of a 120,000-kw generating unit late in the year. Grand Coulee's six 108,000-kw generators had been operating at average peak loads of 130,000 kw each.

The major utility companies in Oregon and Washington issued a joint statement that investors and managements of publicly and privately owned industrial and electric distribution enterprises in those states were planning their programs in the belief that the Federal Government would continue to assume responsibility for providing all or a substantial part of additional generating capacity needed there. However, opposition of the privately owned industry to further extension of public power projects continued strong, and Congress severely restricted public power funds, so much so that in one instance (Bonneville) protests came from private power industry spokesmen.

In late November the FPC urged emergency interconnections of electric utility systems as the only important means not fully utilized to effect maximum use of existing generating capacity. It offered exemption from regulatory restrictions, as to advantageous energy exchange arrangements, under emergency provisions of the Federal Power Act. Major interconnections were specifically recommended for 11 areas in the East and Midwest. The Commission noted that manufacturers had been unable to supply electric equipment fast enough to meet generating needs, resulting in unavoidable installation delays. Fuel shortages and extreme drought conditions, especially in the northeast in October, contributed to the power stringency.

DEMAND FOR GENERATING EQUIPMENT

A report of Interior Secretary Krug in September to President Truman, on national resources, held that with regard to electric power, domestic demand for generating equipment will equal if not exceed production thereof for at least two years, but that after 1949 annual production of such equipment will exceed national requirements by 500,000 to 1,000,000 kw. It also indicated that electric power supply would be tight until 1950, but without a national "power famine." The conclusions were on the basis of continuation of high employment and production.

Efforts to offset rising costs of steam generating plants include adoption of larger sizes of units, higher steam temperatures, centralized controls, simplified maintenance, and standardization.

CONSTRUCTION PROGRAM FOR POWER PROJECTS

The Bureau of Reclamation, in the Department of the Interior, is expected to present a $2,000,000,000-six-year construction program to Congress in 1948, of which about $800,000,000 is reported to be for power projects, with some $295,000,000 assigned to the next fiscal year. Secretary Krug stated that completion of the six-year program would add less than half of all Reclamation projects that have thus far been authorized. Plans include the installation of 2,752,000 kw of new capacity by 1952.

Important electric power legislation before Congress at the end of the year included the Vandenberg bill for construction of the St. Lawrence waterway and power project, which had been approved 9 to 4 by the Senate foreign relations committee; also bills transferring to private power companies certain of the benefits of Federal power projects as to which public agencies now have preference, and the Miller bills for limiting the jurisdiction of the FPC.

The latter bills, introduced by Representative W. J. Miller of Connecticut include one to restrict the definition of navigable streams upon which the FPC has jurisdiction for licensing and regulating private power projects, and also to restrict the licensing power itself. Another would strictly limit the jurisdiction of the FPC over intrastate electric power where it now has jurisdiction because of interstate sources or other relationships. The National Association of Railroad and Utilities Commissioners favored these bills, provided state commission control is suitably protected. In November and December the FPC held a series of conferences with representatives of the NARUC and the National Association of Electric Companies, to discuss compromise measures.

The scope of long-distance transmission of electrical energy has been increased by use of higher voltage; for experimental purposes this even went to 500,000 volts on two 1½-mile test lines in Ohio, more than twice as high a voltage as is now utilized at all extensively.

HEAT PUMP TESTS

Increased interest developed during the year in the "heat pump," a device for heating buildings by a reverse refrigeration process, powered by electricity; heat is taken from the ground, the air or water, even at fairly low temperatures, by the refrigerant and carried into buildings in sufficient quantity to heat them, by a cycle of evaporation, compression, and condensation, in a piping system. At the EEI convention in June it was reported that large-scale production of heat pumps would begin some time in 1948, and was expected to provide a substantial and growing electric power load, in as much as average electric requirements of a heat pump are given as from 4,000 to 9,000 kwh per season, depending on location and climate. A group of electric companies commissioned three major manufacturers of heating and air-conditioning equipment to supply heat pumps for testing during the 1947-48 winter in various locations.

In October, Chairman David E. Lilienthal of the Atomic Energy Commission stated that "no one should delay sound and economical additions to power supply, whether by fuel-generated electricity or by water power, because somewhere in the future atomic energy will come on the scene as an additional source of supply. There will certainly be ample time to make whatever adjustments will be needed."

PUBLIC UTILITY OWNERSHIP IN NEBRASKA AND TENNESSEE

With the Omaha Public Power District taking title to the properties of the Nebraska Power Co. in 1947, all electric utilities in Nebraska are now publicly owned. This is also the case, substantially if not entirely, in Tennessee, where the Tennessee Valley Authority supplies electrical energy through municipal or cooperative utilities. Although acquisition costs in Nebraska have been criticized, average electric rates per kwh are reported below the national average, whereas some years ago the Nebraska average was well above the national.

In May the Court of Appeals, highest New York state court, decided 4 to 3, in a suit brought by the Staten Island Edison Co., that a utility company claiming that rates ordered by the Public Service Commission were confiscatory was entitled, on sufficient showing, to relief by injunction and a court trial on the merits—thus reversing legal procedure of long standing in that state, and in Federal circles, whereby court review was limited to considerations of law and the existence of substantial evidence in support of the Commission's decisions. A serious obstacle was thus placed in the path of expeditious rate regulation in New York, but the remainder of the year passed without a test of its magnitude.

GAS

At the 29th annual convention of the American Gas Association in October, R. H. Hargrove, the retiring president, asserted that the gas industry is at the peak of its activities. He decried fears of exhaustion of natural gas reserves, stating that more and more fields have been discovered, so that present estimates of reserves are 600 per cent greater than the 1925 estimate and 90 per cent greater than that of 1940. He referred to local gas shortages that have occurred, accentuated by demand for gas house-heating, which has been restricted in some localities, at least temporarily. He urged that the industry equip itself to handle the winter heating demand and to attempt to balance it by a summer load in the developing field of gas air-conditioning. He also stressed increasing costs of labor and materials. These have brought about company demands for higher gas rates, met in various instances by substantial increases, notably in New York City.

The AGA announced in October that gas revenues in the 12 months ended June 30, 1947 amounted to $1,313,800,000, a gain of 13.4 per cent over the preceding 12 months; the number of customers in mid-1947 was given as some 21,000,000.

After protracted hearings and consideration the FPC finally authorized the Texas Eastern Transmission Corp., purchaser of the so-called Big Inch and Little Big Inch pipe lines, constructed by the Federal Government for wartime transportation of oil, to use the lines for transmitting natural gas, on a permanent basis, from Texas to Philadelphia and other eastern points. This company has indicated its intention to apply for authority to extend its lines to serve New York City. Another company, the Trans-Continental Gas Pipelines Co., Inc., has applied to the FPC for authority to build a $150,000,000 line from Texas to the Hudson River.

INTRASTATE PIPELINE REGULATION

Authority of the FPC to regulate the price charged by one interstate production and transmission company for natural gas delivered from its production fields in one state (Louisiana in this case) to other pipeline companies for use in other states, was unanimously affirmed by the U. S. Supreme Court on June 16, 1947 in *Interstate Natural Gas Co. vs. Federal Power Commission.* Such regulation has been attacked as contrary to the Natural Gas Act of 1938, which exempted the production or gathering of natural gas from the jurisdiction of the Commission, and counsel for the natural gas industry contended that the FPC could not legally regulate in any respect the intrastate field operations of a pipeline company. The Court stated, however: "The gas moved by petitioner to the points of sale consisted of gas produced from petitioner's wells commingled with that produced and gathered by other companies and introduced into petitioner's pipeline system during the course of the movement. By the time the sales are consummated nothing further in the gathering process remains to be done. We have held that these sales are in interstate commerce. It cannot be doubted that their regulation is predominately a matter of national, as contrasted to local, concern."

The FPC has apparently dealt only with factors in the control of the pipeline companies or their affiliates, in respect to property, production costs, etc. By an order adopted on Aug. 7, 1947 it assured independent producers and gatherers of natural gas that "they can sell at arm's length and deliver such gas to interstate pipelines and can enter into contracts for such sale without apprehension that in so doing they may become subject to assertions of jurisdiction by the Commission under the Natural Gas Act."

In February certain Natural Gas Act amendments, sponsored by oil and gas companies, were proposed to Congress in an attempt to deprive the FPC of any power of regulation concerning gas production. A somewhat modified bill passed the House of Representatives and was pending in the Senate late in the year.

Forty small cities in Alabama, Georgia, and Florida undertook the installation of natural gas distribution systems, to be financed by revenue bonds estimated at $20,000,000; about 60,000 customers, including some large industries, were involved.

TELEPHONES

The fiftieth anniversary meeting of the U. S. Independent Telephone Association, Oct. 13-16 in Chicago, emphasized the fact that, though the Bell telephone system, headed by the American Telephone & Telegraph Co., includes most of this country's telephones, particularly in the big cities, independent companies numbering some 6,000 provide telephone service in almost two-thirds of the nation's area, own and operate about 20 per cent of total telephones and have extensive toll lines of their own which connect with Bell toll lines to form a nationwide long-distance telephone system.

Telephone equipment shortages caused by the war were gradually overcome during the year. The demand for telephones in the Bell system was stated in October to be 2,000,000, with telephone installations running at the rate of 3,000,000 annually; 5,700,000 had been made since V-J Day (Aug. 14, 1945). Late in November the New York Telephone Co. announced that its waiting list or backlog had in ten months been reduced from 450,000 to 350,000, of which 285,000 were in New York City, and that it would be cleared up in 1948. A half million customers had been added since September, 1945; and on Monday, Nov. 24 a total of 15,415,470 telephone calls were made in New York City, a large increase over the prior record.

Many applications for telephone rate increases were made by both Bell and independent companies, spurred by increases in wages and cost of materials and equipment; and many such requests were granted, in whole or in part, by regulatory bodies. In the Bell system, increases totaling $50,000,000 per annum were obtained between April and August, with applications pending for $90,000,000 and announced plans for $50,000,000 additional.

President Walter S. Gifford of the A. T. & T. Co. announced in October that his company in 1947 would earn its usual dividend of $9 per $100 share of common stock; stockholders were reported as about 717,000 in number. The company made three huge issues of debentures during 1947. In June an issue of $200,000,000, the second of the year, was purchased by underwriters at a bid of 2.7826 per cent yield, with a coupon rate of 2⅞ per cent, and was reoffered to the public at 107⅞, to yield about 2.76 per cent. In October another issue of $360,000,000 was announced, to be dated Dec. 15, 1947, with 10-year maturity. It was stated that the new funds would be used for the expansion program of system companies.

LOCAL TRANSPORTATION

Passenger travel on local street-car, bus, and rapid transit lines continued at a high level in 1947, but expenses increased, especially labor costs, and profits were generally reduced, or eliminated in various instances. In some cases bus companies went out of business; in New York City the company serving Staten Island, and the North Shore Bus Co., one of seven serving the borough of Queens, gave up their franchises and operation was taken over by the Board of Transportation, which operates all the rapid transit lines in New York City and all the street-car and bus routes in the Borough of Brooklyn. However, a dozen other private bus companies continue to operate in Manhattan, the Bronx, and Queens with varying financial results, particularly good in Manhattan.

All three classes of transit operated by the Board of Transportation showed operating deficits under the 5¢ fare in 1947, and Mayor O'Dwyer proposed a fare rise to 8¢ to cover operating expenses (leaving interest and amortization of debt to be met out of taxes) as part of a larger plan of municipal finance. The merits of zone fares, to rationalize riding and revenues, received no apparent weight.

A considerable movement for increased fares on transit lines, both public and private, developed during the year. The Philadelphia Transportation Co., operating the city-owned subway as well as street-car and bus lines, obtained a fare increase from 8¢ to 10¢. In St. Louis and Washington the privately owned systems obtained increases in the price of weekly passes. On Seattle's public system the fare was increased from 8⅓¢ to 10¢. Some reductions occurred, however, including extension of the 5¢ fare on lines of the Westchester Street Transportation Co., in suburban Westchester, adjoining New York City.

The Chicago Transit Authority, a public corporation, on Oct. 1 took over the properties of the Chicago Surface Lines and the elevated railway of the Chicago Rapid Transit Co. for combined operation along with the new city-owned subway. The price paid for the surface lines was $75,000,000; that for the elevated lines was $12,162,500. The surface fare, which was increased from 8¢ to 9¢ in the spring, was further increased to 10¢. The El fare remained at 12¢, but transfers to surface lines are given. The Authority sold a $105,000,000 bond issue to effect the purchase and to provide funds to initiate an extensive ten-year rehabilitation program, including new El cars, replacement of many street cars by buses, and extension of bus routes.

In Boston and 13 surrounding municipalities the Metropolitan Transit Authority was created by the 1947 Massachusetts legislature for unification and improvement of service in the entire area, with transfer of Boston transit lines from private to public ownership, through proceeds of a $23,000,000 bond issue.

Seven of the 12 largest cities in the United States now own all or a large part of their local transportation facilities: New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, and San Francisco.

UTILITIES FINANCING

The vast program of refunding of utility and other corporate bonds in recent years to take advantage of lower interest rates was considerably diminished in 1947; however, issues of securities for "new money" increased substantially, despite a hardening of interest rates. The bond market as a whole slowed up very materially, but showed a tendency to improve toward the year's end. *The New York Times* average of domestic bond prices declined from a high of 98.4 in February to about 91 in December; the 1946 range was from 103.6 to 95.7. Utility bond issues in December attracted active bidding, however, at low interest rates compared to a few years ago; high-grade bonds still sold at yields of less than 3 per cent.

LABOR RELATIONS

Unionization of public utility employees continued to spread in 1947, and was accompanied by serious labor disturbances in the early part of the year, substantially declining thereafter. Increased cost of living brought indications of renewed demands for wage increases in 1948, particularly if inflation is not effectively met.

Strikes of utility workers in 1946 and 1947, some of them widespread and disruptive, contributed to adoption of legislation in several states to restrict or prohibit strikes in public utilities. Such legislation, including provisions for compulsory arbitration, was passed during 1947 in Indiana, Missouri, Pennsylvania, Michigan, and Wisconsin. Virginia has a similar law dating from 1946.

In New Jersey, where state seizure of strike-bound utilities had been authorized in 1946, but without drastic penalties, legislation was adopted in April to require compulsory arbitration and authorizing jail sentences and fines if a utility strike continued. The state had taken over the property of the New Jersey Bell Telephone Co. to end a strike, but the strikers had not returned. Constitutionality of the law is being tested in the state courts; a test in Federal court, carried to the U. S. Supreme Court, was deferred pending the state court action.

Texas, in addition to banning the closed shop generally, adopted a law restricting picketing that aims to interfere with public utility service (other than telephone and other communications).

In New York State a law was passed outlawing strikes by public employees—which would include subway and other transportation employees of New York City, who have threatened strikes. Mayor O'Dwyer, although not approving this legislation, had announced that neither a closed shop nor any right to strike could be recognized in the city's transit system.

Under the Taft-Hartley Federal labor law, effective June 23 over President Truman's veto, the Federal Government can seek an injunction against a strike in emergency cases affecting national health and safety as well as substantially an entire industry (such, conceivably, as in the telephone or electric field). The injunction would be for not more than 80 days pending inquiry and efforts at adjustment, with final reference to Congress if the dispute is not settled.

The chief strike in 1947 was in the Bell telephone system, over a demand of the National Federation of Telephone workers and cooperating unions for industry-wide bargaining and a general wage increase of $12 a week (or roughly 25 per cent). The strike began on April 7. On April 30, New York Telephone workers expressed willingness to accept a $4 increase but did not return to work until May 5 because of picket lines of A. T. & T. Co. and Western Electric Co. workers. Shortly after, a series of local settlements was made, at various rates of increase granted by different companies of the system. By May 18 nationwide service was nearly normal, and on May 20 the last major dispute, the Western Electric strike, ended with an average wage rise of 11½¢ an hour.

The Utility Workers Union of America (CIO) held its second annual convention in October and laid plans for compliance with the Taft-Hartley law and for competing for utility employees with the International Brotherhood of Electrical Workers (AFL). The UWU claimed to have contracts covering 72,000 utility employees, and to have 3,000 other members in plants still in process of organization. A policy was announced of crossing picket lines if necessary to comply with contracts, except where a primary employer has engaged non-union workers to break a strike.

The United Utility Unions of America, a loose federation of nine or more independent unions, dissolved Oct. 11 at a St. Louis meeting, with the expectation that most of the component unions, particularly that of Duquesne Light Co. employees, in Pittsburgh, would affiliate with the UWU. Dissolution was ascribed to the feeling that alignment with a national utility union would help overcome restrictions caused by state and national labor legislation.

Acting under a law adopted in Pennsylvania in June to prevent utility strikes, Governor James H. Duff appointed a 12-man labor-management committee with the duty to suggest a list of arbitrators from which the Governor was to select a panel of 12 members who would be available to arbitrate labor disputes if necessary. Labor members of the committee included George L. Mueller, president of the independent union of the Duquesne Light Co. and leader of the disastrous 1946 Pittsburgh electric strike, as well as representatives of the AFL and CIO. Management members were from electric and other utilities.

CONCLUSION

The end of the year found the chief problem of the major utilities that of supplying unprecedented demands. Lack of full capacity to do so extended back to the manufacturers of equipment. Further difficulties in the way of rapid expansion were imposed by high cost of equipment and of its installation, and a less favorable market for securities. The general inflationary situation besides affecting these conditions, increased the cost of operation and stimulated action for rate increases—and for wage increases; hence, stabilization became highly important to the utilities. The labor situation, while relatively quiescent, held portents, also related to inflation, of trouble to come, pointing up the dilemma of fair wage determination and labor policy in an essential industry with controlled prices and profits, or, in the case of publicly owned utilities, without profits but with labor and material costs inherent elements of the cost either to consumers or taxpayers.

WATER SUPPLY

By Clinton L. Bogert
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CONSTRUCTION

Questionnaires sent to State Sanitary Engineers by the American Water Works Association in April, 1947, elicited the general opinion that the inter-related factors of rising costs of construction, shortages of labor and materials, and slow deliveries, are dominant considerations in retarding post-war construction. The Construction Cost Index of the *Engineering News Record* continued to rise throughout the year, from 174.24 in November 1946 to 206.36 in November 1947. Replies from water works operators in *Water Works Engineering*, Nov. 12, 1947, stress the very slow delivery on cast-iron pipe and valves. James E. Gibson of Charleston reports in *Water Works Engineering*, July 6, 1947: "The schedule of improvements and extensions outlined for 1946, has not been completed on account of delays, strikes, inefficiency of workmen, and difficulties in obtaining material."

Construction went ahead on Merriman Dam for New York City, and on the $9,000,000 tunnel at Baltimore. Miami completed a $710,000 cast-iron transmission line and a $585,000 addition to Hialeah filter plant. Omaha carried out all 1946 plans at a cost of $800,000. Nine major items on the 5-year program at Dallas were completed or under contract during 1947, at costs 20 to 40 per cent above the 1946 estimates. The $14,000,000 program at St. Louis was deferred until conditions became more settled.

NEEDED WATER SUPPLY FACILITIES

The results of the first nationwide inventory of sanitation needs in continental United States by the Sanitary Engineering Division of the United States Public Health Service, Federal Security Agency, Washington, D. C. were reported in a release dated July 6, 1947.

About one-third of the $2,200,000,000 need for water works is for the development of water supply sources. This reflects the high cost of completing New York City's Delaware watershed supply; development of an upland supply to replace Philadelphia's present highly polluted supply sources; and additional developments to augment Denver's existing sources of supply. Approximately one-sixth of the water works needs is for treatment facilities and about one-half for distribution systems.

These water works needs include 5,700 complete water works systems, most of them for towns of less than 1,000 population and improvements to the systems in 14,800 other communities. Some 3,200 new water treatment plants are needed as well as improvements or additions to 4,700 existing plants. More than 45,000 miles of water mains of various sizes are needed for the distribution systems.

ADJUSTMENT OF RATE STRUCTURES TO RISING COST LEVELS

Howson (*Journal of the American Water Works Association,* September, 1947) finds the revenues of 100 water works for the 5-year period (1941-6) have increased 19.4 per cent, and operating expenses 27.8 per cent, but the increases in the last year, 1945-1946, were 4.9 and 11.1 per cent, respectively, a much greater disparity. Water costs 4 cents per ton, and coal $3.18. Commodities other than water have increased in cost as a general average approximately 50 per cent since the beginning of the war, whereas the cost of water has remained substantially static.

He concludes, in brief: 1. Water works should have increased revenues within the near future, or their service and development must be curtailed; 2. the average increase throughout the country should be approximately 30 per cent; 3. if the arrangement of the present rate schedule is satisfactory and equitable, the simplest change is the application of a uniform percentage increase. With less satisfactory schedules, the change offers opportunity for removal of inequities.

NEED OF NATIONAL WATER POLICY

In his report to the Board of Direction of the American Society of Civil Engineers, Dean Thorndike Saville of the School of Engineering of New York University, states: "The National Water Conservation Conference, made up of state officials and representatives of various organizations throughout the United States interested in water conservation, adopted as its primary resolution: 'the situation requires that steps should be taken to explore the various facets of land and water use and control, including the extent of the undeveloped water resources of the nation; the existing federal, state and local laws and agencies charged with the development and control of water; the conflicts of jurisdiction, planning and execution existing among or between these laws and agencies; the effect upon the national economy, welfare and safety of existing laws, and the policies and activities of the agencies concerned; and the relation of these factors to other elements of the national economy such as industry, agriculture and commerce.'" The conference met at Kansas City, Mo., in Sept., 1947.

RESTORATION OF OXYGEN TO POLLUTED STREAMS

The paper industry, whose sulfite mills are notorious stream polluters, has instigated experiments on the Flambeau River (Wisconsin) on diffusing compressed air into the polluted stream, through carborundum pipes placed about 10 ft. below the water surface. The *Paper Trade Journal* (vol. 124, p. 12, 1947) states that the "process appears to be a useful tool in accelerating recovery of polluted stream and shortening to a considerable degree distance of passage required for oxidation of waste and serves to prevent anaerobic conditions and attending nuisance."

DROUGHTS

Crichtlow reported to N. J. Section of the American Water Works Association on Nov. 6, 1947, that the years 1939, 1941, and 1944 were drier than 1947, and the reservoirs were more depleted in those years. The disastrous forest fires in October 1947 at Bar Harbor and elsewhere were attributed to the unusual lack of rain. The scattering of dry ice (solidified carbon dioxide) by planes in the top of a cloud that extends upward into freezing levels, to cause rainfall, has appealed to people praying for rain. Dr. F. W. Reichelderfer, Chief of the Weather Bureau, is quoted in the *United States News* (Nov. 21, 1947) as saying that "under some conditions, rainfall will be caused—but conditions must be such as might have produced rainfall anyway"; he is proceeding with research. Dr. Reichelderfer thinks that, in the end, it will prove valuable in special situations, at least. Dry ice can turn the winter clouds at the top of southwestern mountains into heavy deposits of snow, which later becomes water, available for irrigation, in the streams below. Dry ice already has been used in Hawaii to drop rain on the pineapple fields, rain that otherwise might have fallen at sea.

A.W.W.A. COMMITTEE ON ROOFING RESERVOIRS

A preliminary report by N. J. Howard, Director of Water Purification, Toronto, Canada, discussed the answers to a questionnaire regarding roofs (*Water Works Engineering*, Aug. 20, 1947, p. 1014).

"There was considerable unanimity on the general objectives, but a wide variety when abstractly interpreted. Defects in open reservoirs include: (1) blowing in of dust, debris, ashes, cinders, soot, sprays, gases, and pollens; (2) defiling of water from fish flags, worms, plankton, fly larvae and decaying organic matter; (3) pollution from rodents, water fowl, land birds, domestic animals and wild animals; (4) illegal fishing; and (5) swimming by teen age pranksters. All of these cause pollution and water deterioration.

"Ground water reservoirs need to be covered to prevent rapid fouling with 'Beggiatoa' with hydrogen sulfide is present and other organisms with other substances, particularly iron, manganese, carbonates, nitrates and chloramines. Covering and screening of reservoirs is a 'must' to make storage a safe practice and the only excuse of not covering might be that a given reservoir is too large."

RE-USE OF WASTE WATERS FROM INDUSTRY

On this subject, *Public Works* (May 1947, p. 24), states:

"Re-use practice may be divided on the basis of first use into: (1) Re-use of process waters; (2) Re-use of water from cooling and heating circuits; and (3) re-use of sewage plant effluent.

"In all industrial plants, water is a real and sometimes substantial cost item. Therefore, consideration must be accorded to the possibilities of reclaiming sensible heat and usable materials as well as to the adequacy of supply when weighing the economic advisability of water re-use.

"In some areas, re-use of cooling water is mandatory by law. Seven states, Minnesota, Maryland, New Mexico, New York, Ohio, Utah and Wisconsin, control the use of water from both underground and surface sources. Regulation of water consumption can be enforced in four other states, Kansas, Massachusetts, North Carolina and North Dakota, when and if control is deemed desirable. Because all water entering the sanitary sewers at Miami Beach must be pumped, waste water flows exceeding 2 gpm. from air conditioning systems may not be discharged to the sanitary sewers. Therefore, water economy must be exercised.

"Compressor cooling water has been used as boiler water makeup. Similarly, cooling water from furnace grates has been utilized as boiler water makeup. Economies in heat, water, and water conditioning chemicals are realized from such operations.

"Occasionally, a collateral benefit results from recirculation through avoidance of 'heat' pollution of the stream. Le Bosque of the U. S. Public Health Service, has called attention to the fact that if stream temperature is raised sufficiently by discharge of heated waters, normal stream recovery from pollutional loads may be impaired. It has been reported that one steel mill using 500,000,000 gallons of water per year increases the temperature of the receiving stream to a peak of 130° F.

"The use of sewage plant effluent for various purposes is becoming increasingly ordinary. Such application includes: (1) use of sewage plant effluent by the plant itself in place of fresh water; (2) use after supplementary treatment for industrial purposes; and (3) use of sewage plant effluent for irrigation of crops in semi-arid regions.

"The outstanding example of employing sewage plant effluent as a substitute for industrial water is the Bethlehem Steel Company at Sparrows Point, Maryland. The water table of the underground supply from which the plant pumped 20 mgd. had receded from 10′ in 1898 to 150′ static level in 1940. Salt water contamination of this underground supply had also increased to serious proportions. After full study and investigation, the Bethlehem Steel Company negotiated an agreement with the City of Baltimore to purchase 20 to 40 mgd. of effluent from the Back River Municipal Sewage plant. Treatment of the sewage plant effluent comprises flash mixing of a coagulant, flocculation, sedimentation and chlorination. The use of the sewage plant effluent resulted in curtailing the rate of withdrawal from the plant's underground water resources from 15,000 gpm. to 3,500 gpm. and restored the water table to a level of 80′."

CONSUMER COMPLAINTS

According to the 1947 issue of *Water Works News of New York State,* issued by the State Department of Health, the chief complaints are: rates not justified by services rendered; lack of water, or low pressure, particularly in the lawn sprinkling season; tastes and odors, which the consumer ignorantly associates with pollution; in unfiltered upland supplies, debris, worms, larvae and small fish; staining of fixtures by iron and manganese; hardness, leading to rapid use of soap, and scale formation in hot water equipment; corrosiveness, which may shorten the life of hot water equipment by 80%, and which may produce red water.

LEGISLATION FORBIDDING STRIKES

Many states, including New Jersey, New York, Ohio, Texas and Virginia, now have on their statute books laws prohibiting strikes of public employees, and, in general, declaring such action by the civil employees to be "against the public policy." Upon signing the New York State bill which calls for automatic dismissal of striking public workers of the state and its political subdivisions, Governor Dewey is reported to have said that such strikes could lead to anarchy through a paralysis of government and of all society, and that the state can not permit such action and survive. Section 2 of the Ohio anti-strike bill (Ohio 97th General Assembly, S. B. No. 261) states: "No person . . . in the service of any authority, commission or board, or in any other branch of the public service . . . shall strike." President Ladue of the A.W.W.A. (*Journal,* A.W.W.A., Sept., 1947) holds that such legislation tends to regiment the civil service employee, and advocates a "forthright policy of management-worker relationship which will make anti-strike legislation inoperative by making it unnecessary."

LOW WATER DEMAND RATE FOR FPHA TENANTS

Fifty apartment units housing about 220 people in 13 FPHA buildings at Waukesha, Wis. are served through a single 2-inch meter from a 6-inch street main. A 7-day test (Feb. 25 to March 4, 1946) with recording chart showed a total flow of 61,240 gallons or an average rate of flow of 40 gallons per capita per day. The peak rate for 50 families was 18 gallons per minute, or 117 gallons per capita. Peaks occurred between 6:45 and 8:00 A.M., and 4:45 and 6:00 P.M. The minimum rate was 1.33 gpm. or 9 gallons per capita per day.

ATOMIC BOMB DAMAGE TO JAPANESE WATER WORKS

The United States Strategic Bombing Survey reports that the damage at Nagasaki was restricted to the breaking of the service pipes to practically all destroyed buildings, and at one river bridge crossing. Hiroshima is supplied largely from shallow water wells; in the bombed district, all shallow wells were rendered useless through clogging by debris, and heat damage to the pumps; in addition, there were 5,000 breaks in service pipes, and 17 breaks in the distribution system; the latter were in the nature of fractures to the cast-iron pipe where it had been laid on filled ground.

CONTROL OF TUBERCULATION

For many decades, manufacturers of cast-iron pipe have afforded the purchaser the opportunity of ordering pipe with cement lining, in lieu of the usual tar lining, in regions where tar linings have provided poor protection against tuberculation. Recently methods have been perfected, notably by Centriline Corporation and the Preload Co., for cleaning tuberculations out of old systems, and lining the clean pipes with cement. Thomas F. Wolfe, research engineer of the Cast Iron Pipe Research Association presents in the *Journal of the New England Water Works Association* (December 1946) the merits of cement lining:

"1. Cement linings after an eighty-year history indicate that they will prevent tuberculation.

"2. In supply lines, the high 'C' values that result from the use of cement linings result in economy due to lower pumping costs.

"3. The use of cement linings may make it possible to use smaller-diameter pipe, since the flow coefficient remains constant, as compared to a reduced capacity where ordinary pipe is used.

"4. With certain types of water cement lining mitigates tastes, odors and red-water troubles.

"5. Modern cement linings adhere to the wall of the pipe and are not injured by cutting or tapping."

Corrective treatment with lime to remove aggressive carbon dioxide has been successfully practiced at Baltimore since 1922. A film of calcium carbonate formed on the inner walls of pipes checks corrosion. It is not effective in hot water systems, since the carbonate ions resulting from the lime reaction are broken down by heat into carbon dioxide and calcium hydroxide. Maintenance of a pH value of 7.9 in the water for the past 16 years has served to produce a slight "egg-shell" precipitate of calcium carbonate in the distribution system. The cost of lime treatment has averaged $0.431 per million gallons, or 12 per cent of the treatment cost, over 25 years. This cost includes depreciation of equipment. (Edward S. Hopkins, *Public Works,* July 1947, p. 19.)

MODERN PUBLIC WATER SOFTENING

The first municipal lime-soda process was installed about 40 years ago, the zeolite process a few years later. While the early plants aimed at reducing the $CaCO_3$ hardness to about

10 grains per gallon (178 gpm.), modern plants try for 3 to 5 grains. *Water and Sewage Works* (Dec. 1946, pp. 485-90) states:

"The development of the sludge-contact reactor was a considerable step forward to render the cold lime-soda treated water more stable. The contact with large quantities of previously accumulated precipitates stimulated rapidity and completeness of reaction. This is the modern unit employed in Cold Lime-Soda treatment today. It accomplished, in less than one hour, results equal or superior to those obtained with the old-fashioned continuous unit using four or more hours' retention. Chemicals are saved and a more stable water is produced. So stable is the treated water that some have called these sludge-contact reactors 'Stabilizers.'

"The Sodium Zeolite Process is one of the most efficient methods of water softening. Essentially it comprises a container having a bed of the zeolite or sodium cation exchange material, supported on gravel or anthrafilt, below which is an efficient collection or underdrain system. As the water passes downward through the sodium zeolite, the calcium and magnesium cations in the water are exchanged for the sodium of the zeolite.

"In addition to sodium zeolite, there are now available two other methods, namely, Hydrogen Zeolite and Demineralizing."

DYNAMICS OF WATER CHLORINATION

Prof. Gordon M. Fair told the New England Water Works Association that the complete study "of the disinfection of water supply by chlorine or any other chemical agents involved many factors." Among these he mentioned: "1. The nature of the organisms to be destroyed and their possible concentration in water supply; 2. time of contact between the disinfectant and the organisms; 3. the concentration and constitution of the chemical agent or agents liberated in the water; 4. the temperature of the water; 5. the concentration and composition of the impurities present in the water to be disinfected. . . ."

While there is a long history of the use of chlorine and its compounds for water disinfecting purposes, it was noted that it was not surprising that all of the significant factors are not as yet satisfactorily understood in the chlorination of waters.

Studies of the dynamics of the disinfection process are of fundamental importance in paving the way for more reliable sanitary control of water supplies. Only by a thorough knowledge of the basic factors affecting the destruction of pathogens can disinfection be converted from a trial and error procedure to sound scientific practice. As further information is gained as to how and why organisms are destroyed, the way may be opened to the discovery of new and more efficient disinfecting materials.

THE OZONE PROCESS

This process has been used in Europe for over 40 years but for some reason has never received general acceptance in this country. Before the war there were some 120 ozone plants in use on the water supplies in France, the largest being on the supply for Paris, where a plant capable of handling 79 m.g.d. was in operation. In this country, three Indiana communities, Hobart, Whiting and Long Beach, have plants, one of which has been in operation for 15 years. At the present time, studies are being made for a plant to be installed in Philadelphia.

Ozone, the second most powerful oxidizing agent known, is a gas which can not be stored and must be used as generated. Ozone Processes, Inc. uses air and electricity to generate the ozone. Control is very simple, as the dosage can be varied by changing the voltage or by changing the number of generators in operation. Any over-dose is self-dissipated and with an under-dose, protection and treatment are provided in proportion to the amount applied. Ozone residuals can not be carried out into the distribution system but ozone can be used in conjunction with chlorine and very definitely reduces the chlorine demand.

A comparison of the cost of the ozone process with the cost of chlorination shows the ozone treatment to be very expensive, both from an operating and installation point of view. At present, installing the ozone process costs between $10,000 and $25,000 for each million gallons of plant capacity, and the operating costs are about two to three dollars per million gallons. Operating costs are made up almost entirely of power costs, and the above figures are based on electricity at one cent per kwh.

One of the principal advantages of this type of treatment is that tastes, odors, and color can be removed without a filtration plant.

WATER QUALITY LITIGATION

Alleged harmful chemicals in a public water supply were the subject of recent litigation before the Supreme Court of Ontario (*William E. Holder v. Windsor Utilities Commission*).

The plaintiff claimed that he was suing on behalf of himself and all other water users for damages resulting from the action of the commission in treating the water supply by adding harmful chemicals. No stated damages were asked. He stated that he had been in good health when he came to Windsor six years before, but that he had contracted hepatitis and other illnesses there. On inquiry he found that the city was using aluminum sulfate and ammonium sulfate in its water supplies. He complained to the Water Commission, to the government at Ottawa, and to the Provincial Department of Health at Toronto, but no action had been taken. When he discontinued use of the Windsor water and used distilled water, he became well again.

A. E. Berry of the Ontario Department of Health testified that the water in question is treated with aluminum sulfate at the rate of 25 ppm (250 is generally recognized as the maximum for suitability for domestic purposes) and the alum does not pass through the filters.

In giving his decision, Mr. Justice Barlow stated that the case was a most extraordinary one. He stated that the plaintiff had presented no evidence of damage. He found, from the evidence, that the water was of first class quality, effectively supervised and properly inspected by the Provincial Department of Health. He therefore dismissed the action with costs to the plaintiff. (See *Journal of A.W.W.A.*, June 1947, p. 529.)

DE-AERATOR FOR COLD-WATER SYSTEMS

A cold-water de-aerator, designed to protect piping and equipment from corrosion, has been developed by the Cochrane Corporation, Philadelphia, Pa. By reducing oxygen and carbon dioxide to low limits, the product is said to preserve the life and carrying capacity of cylinder jackets and heat exchangers in situations where the carbon dioxide content of raw water would make oxygen corrosion appreciable.

CATHODIC PROTECTION OF STEEL HOT-WATER TANKS

Experimental studies on the life of galvanized steel electric water-heater tanks, conducted by the Westinghouse Electric Corporation, Pittsburgh, Pa., reveal that, in some small areas served by different water systems, some tanks will outlast others. According to the investigators, this difference seems to lie in the lack of lime or carbonates in water, which partially protects the tank wall from corrosion.

It is reported that favorable results have been obtained experimentally by suspending inside the tank a magnesium-alloy electrode electrically grounded to the tank. In this arrangement, it is said that galvanic currents are such that ions flow away from the magnesium electrode instead of the tank wall, thus destroying the magnesium instead of the zinc. When the electrode is well disintegrated, it must be replaced.

The cathodic protection of water

tanks and pipelines has been successfully carried out by several water departments and industries. The application of the principle in domestic water heater tanks protection, although showing favorable results, is reported to be still in the experimental stage. (*Water Works Engineering*, March 5, 1947, p. 246.)

HOT-WATER TANK EXPLOSIONS

A domestic hot-water storage tank is safe against rupture only when operated at pressures not in excess of the manufacturer's rating. It is safe against explosion only when operated at temperatures below 212° F.

Pressure, as related to the explosion of a hot water storage tank, is merely contributory. Without pressure there can not be excessive temperature (temperature in excess of 212°). If the water is not under pressure, it will boil away to atmosphere when the temperature is raised to 212° F.

Pressure in excess of the strength of a tank will cause a rupture at the weakest point, allowing water to run out. If the water temperature is below 212°, a stream of water will be discharged from the tank, causing probable water damage to property.

If, however, the water is overheated when a rupture occurs, part of the escaping water will flash into steam. The high velocity, imparted by the tremendous expansion of the water when changing into steam, may tear the tank apart and an explosion will immediately follow. The higher the temperature above 212°, the greater will be the energy liberated and the more damaging the explosion. (See *News-Letter,* American Society of Sanitary Engineering, May 1947.)

STREET AND HIGHWAY TRAFFIC

By Burton W. Marsh and LeVerne Johnson
American Automobile Association

GENERAL

Again in 1947, America's performance in providing for highway transportation needs proved inadequate to meet the ever-increasing demand. The importance level at which we, as a people, hold highway transportation has still not been placed on the high plane where it belongs in view of the extent to which it affects our lives. One in seven persons in the United States are said to obtain their livelihood directly or indirectly as a result of highway transportation. There are few people whose economic or social status is not affected. Progress in 1947 has been sporadic, but there have been a number of significant and encouraging developments.

NATIONAL SYSTEM OF INTERSTATE HIGHWAYS DESIGNATED

The National System of Interstate Highways, as provided for in the Federal Aid Highway Act of 1944, was designated in August 1947 jointly by the U. S. Public Roads Administration and the state highway departments. It contains 37,681 miles of the nation's major highways, including 2,882 miles of urban thoroughfares. Additional circumferential and distributing routes are to be designated later, and 2,319 miles have been reserved for these routes. The 1944 act limits the interstate system to 40,000 miles. It is significant that this system makes up approximately one per cent of all rural roads but it will carry some 20 per cent of the nation's motor vehicle traffic.

While the Federal Aid Highway Act of 1944 authorized the appropriation of $500,000,000 for each of the first three post-war fiscal years to help states improve and expand their highway systems, no specific sum was provided for the interstate system. There are some who believe that such a specific sum should have been earmarked, or that the system should receive some preferential treatment to implement and speed up progress on it.

STATE HIGHWAY STUDY COMMITTEES CREATED

Special committees were set up or were already functioning in 14 states during 1947 to make comprehensive studies of highway needs, highway revenues, costs for moderately long-range improvement programs, equitable allocation among beneficiaries of taxes required therefor, and a priority program of construction from year to year. Such committees are usually made up of representatives of state legislatures and responsible lay citizens, and are mostly publicly financed. Of the above 14 states having such committees, 13 included legislators and were financed with state funds.

Such highway study committees can accomplish much in securing sound highway policies, plans, and programs. They can also do much to bring about a desirable degree of unification and coordination of the administration of county (local) roads, city streets, and state highways, now in the hands of some 35,600 agencies throughout the country having highway responsibilities. In most states, laws governing highway administration, taxation, and fund distribution are obsolete. Study committee reports have served as useful guides in the preparation of improved legislation. California's officially adopted 15-year state highway program, for example, was based on studies made by such a study committee known popularly as the Collier Committee. (The latter was described in THE AMERICAN YEAR BOOK for 1946.)

CONSTRUCTION UNDER FEDERAL AID INCREASED

Reports by the U. S. Public Roads Administration for the 1947 fiscal year, ended June 30, show that, during the year, 7,929 miles of highway of all classes involving Federal-aid were completed, as compared with 2,964 miles in 1946 and 12,936 in 1941. Completed highways included 2,991 miles on the Federal-aid system, 4,609 miles of secondary and feeder roads, and 329 miles in Federal areas and miscellaneous construction. Cost of projects completed on the Federal-aid system was $142,965,296, and completed secondary roads cost $55,334,860.

Retarded principally by manpower and materials shortages and high costs, highway construction lagged far behind plans. The Public Roads Administration approved for Federal financial participation projects amounting to $932,362,226 for 24,720 miles of highways. Actual Federal payments to states for work done amounted to $193,634,155. The total of all highway construction contracts awarded, involving both state and Federal funds amounted to $817,742,000 for 47,163 miles of road.

PERIOD OF FEDERAL-AID FUND USE EXTENDED

Under the Federal Aid Act of 1944, Federal funds were usable during the year for which appropriated and for one additional year. Because of delays mentioned above, Congress enacted legislation during 1947 granting an additional year for the availability of Federal funds under the 1944 act. Hence, funds allocated to states under that act will not lapse for two years following the year for which they are authorized.

LEGISLATURES ACTIVE ON TRANSPORTATION MATTERS

The National Highway Users Conference estimated that some 10,000 bills affecting highway transportation were introduced in the legislatures of 44 states during 1947. The remaining four did not meet. The most significant trends involved pressure for increased highway user revenues, more dispersion of highway revenues to lesser roads and city streets, toll road developments, and the establishment of highway study committees. The last-named has already been discussed.

Increases in gasoline tax rates were proposed in 35 states, according to an American Automobile Association report, and the following increases were adopted in eight: namely, California (1½¢ to 4½¢), Colorado (2¢ to 6¢), Connecticut (1¢ to 4¢), District of Columbia (1¢ to 4¢), Maine (2¢ to 6¢), Maryland (1¢ to 5¢), Rhode Island (1¢ to 4¢), and Vermont (½¢ to 4½¢). Of these increases, those in Colorado, Maine, and the District of Columbia were enacted as temporary, while existing temporary taxes in New York were made permanent, and temporary taxes in Florida, Idaho, Ohio, Pennsylvania, and West Virginia were extended for two-year periods.

The trend toward increased sharing of state highway funds with counties and cities for use on local roads and streets has become marked in many states. Several states listed above as having increased their gasoline tax rates provide by law that large shares of such increases be distributed among counties and cities. In Colorado, 50 per cent of the two-cent increase is allocated to state highways, 44 per cent for county roads, and six per cent for local city streets. Maryland's new distribution system, including a one-cent increase, is: Baltimore, 30 per cent; counties and other municipalities, 20 per cent; and state highways, 50 per cent.

ANTI-DIVERSION ACTIVITY

Activity designed to reduce the diversion of highway user revenues to non-highway purposes continued during 1947. Twenty states have now adopted anti-diversion amendments to their constitutions, an addition of one (Ohio) during 1947. In addition the legislatures of Tennessee, Massachusetts, and Florida approved amendments which are now to be submitted to a vote of the people at the next general election.

In several states, laws were enacted restricting to highway purposes the expenditure of revenues which formerly were diverted, as follows: California, the motor carrier gross receipts tax; Nebraska, one cent of gasoline tax; Maryland, two per cent certificate of title tax; and New Mexico reduced diversion to registration fees from 15 to 10 per cent. North Carolina and Wisconsin segregated all highway user tax revenues. Illinois enacted a statute which prevents diversion. Hence, the amount of diversion throughout the nation as a whole is being reduced. From a peak of $215,000,000 diverted to non-highway purposes in 1941, diversion was reduced to $95,000,000 in 1946. The increased need for use of highway funds for needed road purposes is bringing this about through state constitutional amendments and suitable statutes.

TOLL ROAD LEGISLATION

Some highway-interested organizations consider the spread of toll roads as the outstanding danger signal of the 1947 legislative session. Statutory authority for the construction of new toll roads was granted in five states—Colorado, Georgia, New Hampshire, Oklahoma, and West Virginia—under various administrative and financing plans. In addition, California, Maryland, New York, and Pennsylvania enacted legislation generally extending the authority to collect tolls. Toll road legislation was defeated in Connecticut, Florida, Ohio, and Washington.

TRAFFIC VOLUME INCREASE

With motor vehicle registration at an estimated 37,164,405 and up 9.5 per cent from 1946, traffic volumes for 1947 reached an all-time high. (Estimates from U. S. Public Roads Administration figures which are based on data from 600 to 700 automatic traffic counters in operation throughout the country by state and local highway authorities.) Early estimates show that each vehicle traveled some 10.000 miles, for a total of some 370.000,000.000 vehicle-miles for the nation as a whole.

Traffic on main roads for each

month in 1947 exceeded corresponding months of 1946 from five to nearly 13 per cent. Vehicle-mileages on local roads for 1947 exceeded 1946 by from 1.5 to over 10 per cent each month, while comparative figures for city streets showed monthly increases of from three to nearly nine per cent.

HIGHWAY ENGINEERING PERSONNEL SHORTAGE

One of the most serious shortages affecting progress in highway work is in engineering personnel, largely because of the inability of highway administrators to pay salaries which are being paid by other organizations. The American Association of State Highway Officials first took action concerning this salary and personnel situation in 1946 when it appointed a special Committee on Salaries and Wages in Highway Departments. In the interim report of this committee late in 1946 it was recommended that the Highway Research Board's Committee on Highway Organization and Administration take over this work since it had already begun exploratory investigations. This was done, and the Highway Research Board released in December 1947, *Bulletin No. 9* entitled "Salary and Wage Practices of State Highway Departments."

The report is far too detailed to cover here. It highlights the very serious shortage of trained and experienced technical personnel. For example, as of July 1, 1947, "there were in the 48 highway departments approximately 9,800 unfilled engineering positions. . . ." It also emphasizes that there are some 25,000 to 30,000 potential civil engineers enrolled in colleges and universities but that there is doubt if many of them can be attracted to employment in state highway departments principally because of "low salaries and ineffective recruiting procedures."

UNIFORMITY OF TRAFFIC LAWS

Co-ordinating work on the Uniform Vehicle Code, Model Traffic Ordinance and the Manual on Uniform Traffic Control Devices was taken over by the National Committee on Uniform Traffic Laws and Ordinances, an organization formed during 1947 upon the termination of the National Conference on Street and Highway Safety.

Gratifying progress was made during 1947 in the amendment of motor vehicle laws to conform more closely with recommended model legislation. Florida, North Carolina, Washington, and Wyoming amended their certificate of title laws to conform more closely with Act I of the Code. Montana and Wyoming enacted new operators license laws substantially in conformity with the Code, leaving South Dakota as the only state not requiring a driver's license. A number of other states amended existing driver's license laws generally toward more comprehensive examinations.

Texas adopted substantially all of Act V of the Code, which is the "Uniform Act Regulating Traffic on Highways." At least 13 other states made revisions in their traffic statutes. Florida, New Mexico, and Wyoming adopted new financial responsibility laws conforming essentially with Act IV of the Code.

Important changes in laws with regard to vehicle sizes and weights were adopted in some 22 states, in general permitting increases. At least five states amended their laws to permit the use of reflectors in lieu of flares and fuses by trucks making emergency stops on highways at night.

Much of the above information comes from a new bulletin, entitled "Uniform Laws," issued in 1947 as the first of a series by the National Highway Users Conference.

New and improved standards for traffic signs, signals, markings, and islands, embodied in the new "Manual on Uniform Traffic Control Devices," reported in these pages in 1946 as substantially completed, were put in final form during 1947 and approved by the various organizations involved. A mimeographed manual is now available in limited supply. The printed manual is to be available soon.

TRAFFIC AND PEDESTRIAN SAFETY CONTESTS

Activities in connection with the National Traffic Safety Contest, sponsored by the National Safety Council, and the National Pedestrian Protection Contest, sponsored by the American Automobile Association, were expanded at the request of the President's Highway Safety Conference to include the assembly and analysis of factual information to serve as the basis for proposed annual reports of progress to the President's Conference.

TRAFFIC ENGINEERING ADVANCES AS A PROFESSION

Traffic engineering as a profession and as a recognized branch of engineering, has been slowly gaining acceptance through the years with much credit due to the vision of the founders and charter members of the Institute of Traffic Engineers. A milestone in the Institute's progress was marked in 1947 with the employment of its first full-time executive secretary, and a national headquarters was established on the campus of Yale University.

Membership in the Institute of Traffic Engineers at the close of 1947 totaled 377, an increase of 29 over the previous year. A complete revision of the *Traffic Engineering Handbook*, originally published jointly by the Institute and the National Conservation Bureau in 1941, and which has taken its place among other technical handbooks used by practicing engineers, was undertaken by leading traffic engineers during 1947.

Recognizing the serious shortage of trained traffic technicians, the Institute of Traffic Engineers made plans for co-sponsoring four traffic engineering short courses in cooperation with engineering colleges. The first such course was scheduled for January 1948 at the University of Minnesota. Institute headquarters frequently circularizes among members, lists of job vacancies, and maintains a confidential list of members seeking new positions. In spite of this service, many traffic engineering positions remain unfilled.

An important guidebook on "Street and Highway Traffic Engineering Functions and Administration" was completed during 1947 by a joint committee of the American Association of State Highway Officials, the American Public Works Association and the Institute of Traffic Engineers. It covers the broad subjects of traffic facts and trends, traffic operations, traffic design, and traffic administration, and will be available in printed form in 1948.

EMPHASIS ON CITY PARKING PROBLEM CONTINUES

Where to park in cities is one of the most perplexing of all urban traffic problems. To a greater extent than ever before, with rapidly increasing automobile registration and use, traffic and other public officials and community leaders have come to realize that, if central business districts of cities are to thrive as centers about which trade and community life revolve, the parking problem must be solved. Perhaps the most controversial issue is whether the provision of parking facilities should be the responsibility of the municipality or of private enterprise.

Some encouraging progress was made in 1947 through the establishment of special parking agencies in some cities, numerous special parking studies conducted cooperatively by the U. S. Public Roads Administration, state and local officials, and through legislative action in a number of states.

Parking authorities, commissions, or special quasi-public agencies have been set up in at least the following cities, and a number of other cities have plans under consideration: Pittsburgh, Pa.; Richmond, Va.; White Plains, N. Y.; Beloit, Wis.; Grand Rapids, Mich.

Comprehensive parking surveys were approved and field work started in 15 municipalities under cooperative arrangements among city, state, and Federal officials. A number of other surveys on parking were conducted independently by cities, and advisory service was extended to numerous cities by the Automotive Safety Foundation, the National Conservation Bureau, and the American Automobile Association and other agencies.

The American Automobile Association, as a follow-up on the publication of its "Parking Manual" in 1946, began issuing in 1947 periodic bulletins on parking to AAA Clubs, public and civic leaders. The Highway Research Board, Automotive Safety Foundation, Eno Foundation for Highway Traffic Control, and other organizations also issued valuable parking materials.

SAFETY EDUCATION ACTIVITIES EXPANDED

It is generally agreed among traffic safety educational leaders that the most hopeful and outstanding progress of the year was made in the institution of driver education and training courses in high schools. In its 1947 report, the Committee on Education of the President's Highway Safety Conference said: "There is every indication that the schools are accepting their responsibility for this phase of education and are approaching the problem with increased interest and enthusiasm."

The American Automobile Association enlarged its program very extensively in 1947. Through cooperative arrangements with manufacturers and local dealers, the Association and its affiliated Clubs placed over 900 dual-control-equipped driver training cars in high schools meeting the requirements that there be employed a properly trained instructor and that the car be used a certain number of class periods per week. AAA educational consultants trained some 1,500 teachers in driving instruction techniques during the year, bringing the total for the past 11 years to over 7,000.

The Center for Safety Education, New York University, conducted approximately 40 programs in teacher training and safety and driver education, varying from one- and three-day conferences to full semester courses at the University. The short courses were held in cooperation with colleges and universities throughout the country. The Center also participated in 15 of the 34 fleet supervisor courses sponsored by the National Committee on Fleet Supervisor Training.

A new California law requires that the "State Board of Education . . . adopt rules and regulations for the establishment of courses of instruction in automobile driving and driver training in secondary schools." Illinois amended its school code to provide that "the curriculum in all public schools must include a course dealing with the content of the Illinois traffic laws." Pennsylvania not only authorizes any school district to provide for the teaching of "safe driving" in elementary and secondary schools, but "authorizes the Board of School Directors to purchase, rent or hire motor vehicles for such instruction." Courses are limited to classroom instruction for pupils under 16 years of age. Action by the Delaware Legislature in 1947 placed the statewide driver education and training program under the State Department of Public Instruction, appropriated $50,000 to continue and improve the program, and added a new assistant superintendent of driver education to the department staff.

An important new project in general adult traffic safety education was instituted during 1947 by the National Safety Council in what the Council termed "Operation Safety." The plan involves the selection of 12 monthly themes and the preparation of a planning guide and kit of materials for each month. Distribution is made each month to a number of educational groups, safety councils, civic groups, and public officials.

TRAFFIC POLICE TRAINING

The Northwestern University Traffic Institute continued to hold its two four-month courses in traffic police training, as well as a number of in-service short courses. In-service short courses were also held at a number of colleges and universities, including the Pennsylvania State College, University of Iowa, and National Institute for Traffic Training held in 1947 at the Georgia School of Technology.

The Federal Bureau of Investigation continued during 1947 to include substantial amounts of traffic law enforcement training in connection with its National Police Academy, held three times during the year.

SCHOOL BUS TRANSPORTATION PROGRESS

There were a number of tangible evidences of progress in school bus transportation during 1947. About 50 per cent of the states have either adopted, or followed closely, National School Bus Standards and at the close of 1947, over half of the states had transportation supervisors responsible for a state bus transportation program. According to reports to the President's Highway Safety Conference, at least 11 states now have organized driver training institutes which bus drivers are required to attend annually.

Design standards for a new type of "Stop-Arm" semiphore were proposed during 1947 to the National Committee on Uniform Traffic Laws and Ordinances for inclusion in the Uniform Vehicle Code, but action has not yet been taken.

NATIONAL INSTITUTE FOR TRAFFIC TRAINING

Again in 1947, the National Institute for Traffic Training was held under the sponsorship of 12 traffic-and-safety-interested organizations. A newly organized National Committee for Traffic Training, membership made up from sponsoring organizations, was directly responsible for planning and directing the 1947 Institute held at the Georgia School of Technology. Courses offered included traffic police operations, driver education and training, pedestrian protection, school transportation, traffic engineering, and driver licensing.

TRAFFIC AND HIGHWAY RESEARCH

Research in highway transportation has always lagged behind needs, not because traffic and highway administrators failed to see the needs, but usually because there were insufficient funds and personnel. Moreover, administrators and their staffs are usually so busy getting seemingly more urgent jobs done that there is little time remaining for research. In spite of these shortcomings, however, some encouraging progress was made during 1947.

The Research Committee of the Institute of Traffic Engineers made a step forward through the compilation of an exhaustive list of needed researches in cooperation with the Committee on Planning and Traffic Engineering of the American Association of State Highway Officials. The ITE committee also made a survey of organizations best fitted to conduct certain researches, for the ultimate purpose of seeking to avoid duplication wherever possible. The list of researches, which is to be expanded and set up on a priority basis, includes over 80 possible subjects for investigation. The Department of Traffic and Operations of the Highway Research Board also maintains an extensive list of needed traffic researches.

The Bureau of Highway Traffic, Yale University, continued during 1947 its program of courses involving traffic engineering training and research. Each student is required to develop a report or thesis based on a research study having original value in highway traffic. In addition to student research, a member of the Bureau staff was assigned in 1947 to a special investigation on garage design, operating characteristics, etc.

The National Safety Council's Committee on Winter Driving Hazards continued its investigations of skidding characteristics on ice and snow, with particular emphasis during the 1947 tests on stopping heavy vehicles. Results of the researches are published in the Committee's report on "Winter Accident Prevention."

A wide variety of research results were reported at the annual meeting of the Highway Research Board in 1947 by Federal, state and local highway transportation leaders, covering such broad subjects as highway design, parking, roadside development, and control of access, maintenance, land acquisition, construction, soils and subgrades, and economics, finance and administration.

In the field of traffic safety research, one of the highlights of 1947 was the establishment by the American Automobile Association of the "AAA Foundation for Traffic Safety." The Foundation will concentrate much of its attention on educational activities in the safety field, including the institution of driver training programs in high schools throughout the nation. It will produce various types of safety materials and will engage in research and experimentation to test the effectiveness of various safety programs.

The Highway Research Board continued during 1947 its Highway Research Correlation Service, which is designed to disseminate research information among highway-interested organizations and individuals. One of its effects is to reduce the lag between important research findings and their practical application.

Another significant development in the field of research in 1947 was the announcement in December of a grant of $15,000 by the Alfred P. Sloan Foundation to the Yale Bureau of Highway Traffic for a special study of "relationships, policies and technical practices of state and local agencies concerned with traffic administration. The study will attempt to analyze and evaluate currently used engineering techniques." The grant will be administered by the Automotive Safety Foundation.

TRAFFIC PUBLICATIONS

Space does not permit a complete listing of all of the important highway and traffic publications published in 1947. However, the following will indicate the caliber and diversity of the subjects:

Uses of Traffic Accident Records is a 187-page manual published by the Eno Foundation for Highway Traffic Control and produced by the Committee on Uses of Developed Information of the National Conference on Uniform Traffic Accident Statistics. The manual is designed to point the way to better use of accident statistics by engineers, educators, enforcement officials, and others.

Traffic Quarterly is a new journal published in January 1947 by the Eno Foundation. It contains a limited number of high-caliber articles on general traffic and highway matters, and is published four times annually.

A Selected Bibliography on Highway Safety was published in 1947 by the Highway Research Board at the request of the National Committee for Traffic Safety. The bibliography covers not only highway safety, but such related matters as highway design, facilitation, etc.

The Principles of Traffic Law Enforcement is a 350-page book published by the Northwestern University Traffic Institute covering the basic requirements for sound traffic policing and principles governing traffic police performance.

"Traffic Performance at Urban Street Intersections" is the first of a series of technical bulletins published by the Bureau of Highway Traffic, Yale University. This first bulletin covers such technical phases of intersection control as time-space relationships between vehicles, acceleration, deceleration, driver reaction time, and demonstrates the application of the Poisson Theory to vehicular traffic patterns.

"Your City Is Your Business," published by the Chamber of Commerce of the United States, is a 223-page report on the Businessmen's Conference on Urban Problems held under the Chamber's sponsorship in September 1947. The report covers such subjects of interest to urban communities as planning, traffic congestion, off-street parking, and rebuilding blighted areas.

PERIODICAL PUBLICATIONS

Bus Transportation
330 West 42nd Street, New York City.
Economic Geology
Natural History Bldg., Urbana, Ill.
Electrical Communication
67 Broad Street, New York City.
Electrical World
330 West 42nd Street, New York City.
Gas Age-Record
9 East 38th Street, New York City.
Journal of the American Water Works Association
500 Fifth Ave., New York City.
Journal of Geology
5750 Ellis Ave., Chicago.
National Engineer
176 W. Adams Street, Chicago.
Public Service Magazine
1012 Pioneer Bldg., St. Paul, Minn.
Public Utilities Fortnightly
1038 Munsey Bldg., Washington, D. C.
Public Works
310 East 45th Street, New York City.
Sewage Works Engineering
24 W. 40th Street, New York City.
Water Works and Sewerage
155 East 44th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN PLANNING AND CIVIC ASSOCIATION, 901 Union Trust Bldg., Washington, D. C.
AMERICAN PUBLIC UTILITIES BUREAU, 280 Broadway, New York City.
AMERICAN TRANSIT ASSOCIATION, 292 Madison Ave., New York City.
AMERICAN WATER WORKS ASSN., 500 Fifth Ave., New York City.
EDISON ELECTRIC INSTITUTE, 420 Lexington Ave., New York City.
INTERNATIONAL ASSN. OF FIRE FIGHTERS, A. F. L. Building, Washington, D. C.
NATIONAL PARKS ASSN., 1214 Sixteenth St., N.W., Washington, D. C.
PARK ASSN. OF NEW YORK CITY, INC., 295 Madison Ave., New York City.
PUBLIC SERVICE COMMISSION (N. Y. State) Albany, N. Y. and 233 Broadway, New York City.

DIVISION IX

DEFENSE AND ARMAMENT

THE UNITED STATES ARMY

By Robert S. Thomas
Military Historian, Historical Division, Special Staff,
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NEW UNIFIED DEFENSE SYSTEM

The calendar year 1947 emphasized two important military trends—an urgent campaign for the achievement of universal military training and, secondly, a complete reconstruction, by merger, of the United States military organization.

On July 26, 1947, General Dwight D. Eisenhower, Chief of Staff, dispatched this message to Army commanders throughout the world: "The President has signed the National Security Act of 1947 and Unification of the Armed Forces will soon be an established fact. This measure is designed to integrate our military forces —Army, Navy, and Air Force—into a coordinated fighting team. It is incumbent upon all ranks to accept and practice unification in spirit and in action as a patriotic duty. We of the Army must do our full part to insure the success of this legislation and demonstrate that it results in greater unification as opposed to separation . . ." The Act provided for the creation of a new organization, the Department of Defense, with a Secretary of Defense invested with Cabinet rank. It was originally provided that the provisions of the Act would be effective ". . . the day after the day upon which the Secretary of Defense takes office or 24 September 1947 in the event he does not take office prior to this date."

However, in a surprise move, President Truman, in a radio message from the battleship *Missouri,* homeward bound from Rio de Janeiro, gave orders for an earlier implementing date and, on Sept. 17, 1947, former Secretary of the Navy, James V. Forrestal, was sworn in as Secretary of Defense. On the following day, the process of shaping the nation's new unified defense system continued with the swearing in of the other top officials in the organization.

John L. Sullivan, who had been Under Secretary of the Navy, became Navy Secretary; W. Stuart Symington, who had been Assistant Secretary of War for Air became Secretary of the new Department of the Air Force; Kenneth C. Royall, who had moved up from the position of Under Secretary of War to Secretary of War on July 24, 1947 when Robert P. Patterson resigned, became Secretary of the Army; Major General William H. Draper, Jr., served as Under Secretary of the Army and Gordon Gray as Assistant Secretary of the Army.

Interior administrative officers in the Army were: General Dwight D. Eisenhower, Chief of Staff (to be succeeded by General Omar Bradley); General Jacob L. Devers, in command of Army Ground Forces; General Carl Spaatz, in command of Army Air Forces. The new Deputy Chief of Staff, appointed in July, is Lieutenant General J. Lawton Collins. American forces overseas dropped the title of "Commands" and were named and commanded as follows: General

Lucius D. Clay, Headquarters U. S. Army, Europe; Lieutenant General Willis D. Crittenberger, Headquarters U. S. Army, Caribbean, absorbing the former Panama Canal and Antilles Departments, ground forces in Puerto, Virgin Islands, and leased bases in the West Indies and British Guiana; General Douglas MacArthur, Headquarters U. S. Army, Far East; Major General H. A. Craig, Headquarters U. S. Army, Alaska (including the Aleutian Chain); Lieutenant General John E. Hull, Headquarters U. S. Army, Pacific; Major General Lawrence C. Jaynes, Headquarters U. S. Army, Mediterranean; Major General Bryant E. Moore, Headquarters U. S. Army, Trieste; and Lieutenant General Geoffrey Keyes, Headquarters U. S. Army, Austria. The Hawaiian Department, labeled obsolete, passed out of existence without establishment of a successor headquarters.

Within the Office, Chief of Staff, Division heads were: Major General Willard S. Paul, Personnel and Administration; Major General Stephen J. Chamberlin, Intelligence; Lieutenant General Charles P. Hall, Organization and Training; Lieutenant General Le Roy Lutes, Service, Supply, and Procurement; Major General Lauris Norstad, Plans and Operations (succeeded by Lieutenant General Albert C. Wedemeyer); Major General Henry S. Aurand, Research and Development. In December, the six staff divisions were reduced to five. This was done, by redesignating the Research and Development Division as the Research and Development Group of the Service, Supply and Procurement Division of the General Staff.

Chiefs of the several arms and services were: Major General Edward F. Witsell, Adjutant General's Department; Major General Ira T. Wyche, Inspector General's Department; Major General Thomas B. Larkin, Quartermaster General's Department; Major General Everett S. Hughes, Ordnance Department; Major General W. H. Kasten, Chief of Finance; Major General Raymond W. Bliss, Surgeon General; Lieutenant General Raymond A. Wheeler, Chief of Engineers; Major General Spencer B. Akin, Chief Signal Officer; Major General Alden H. Waitt, Chief of Chemical Warfare Service; Major General Thomas H. Green, Judge Advocate General; Major General Luther D. Miller, Chief of Chaplains; Major General Kenneth F. Cramer, Chief of National Guard Bureau.

UNIVERSAL MILITARY TRAINING

On May 29, 1947, President Truman received the report of his Advisory Commission on Universal Training, headed by Dr. Karl T. Compton, president of the Massachusetts Institute of Technology. Among other items, this Commission's report stated: "Never again will our Nation have months of relative immunity after the outbreak of war to mobilize, train, and equip an effective fighting force. Our preparation must be such that we can stand alone from the very beginning of the attack—and win." To emphasize our critical military position, the Compton Report stated: "The Army that fought with such power against Germany and Japan has been dismantled. Virtually all of what is left is assigned to occupation duty in the defeated countries. At a time when war can strike without warning, and with devastating force, our ground forces have only 2⅓ full combat divisions available for duty. Our air and sea strength is somewhat more formidable, but is dwindling so rapidly that it cannot long be considered a shield against possible attack."

To correct this situation, the Compton Commission, with the approval of President Truman, recommended a corrective program which should include, "(1) a strong, healthy, educated population; (2) a coordinated intelligence service; (3) scientific research and development; (4) industrial mobilization and stockpiling; (5) balanced armed forces; and (6) universal training. The armed forces would embrace: First—A mobile striking force, relying heavily on air power; second—A coordinated Army, Air Force, and Navy, including Marines, capable of undertaking an immediate campaign for strategic bases anywhere in the world."

Here, then, was the most compact national security program ever presented to our people. One of the recommendations, that for a coordinated, merged force, has already been translated into fact. The plea for universal training has been emphasized throughout our territorial bounds in every way—in the press, in speeches before assemblies of patriotic organizations, and by means of the radio. Among the many presentations, was that of Lieutenant General Raymond S. McLain, speaking at a National Guard Day celebration at Dallas, Tex., on Oct. 18. He said, in part: "The world has shrunk to a neighborhood. You can go to Japan, spend a day in Tokyo, and be back here [Dallas] for dinner next Sunday. . . . There are no longer any land barriers, ocean barriers, or air barriers to separate people and nations. Air power has added the third dimension to war. Amphibious operations have made the oceans into broad highways. There is no greater problem facing the American people today than the establishment of an adequate military policy to protect us in this kind of a world. . . . The security of this Nation cannot rest on one weapon alone nor on one assumption alone. Neither can our military policy be so fragile that human error or surprise attack such as that at Pearl Harbor can disrupt it. . . . When war comes, retaliation must be immediate. . . . Why not increase the National Guard and Organized Reserves? . . . [They] have performed magnificently. But the problem is beyond them as they are now organized. . . . It is obvious that with war moving at the speed it does, the National Guard cannot fulfill its training mission or its M-Day mission under a system which provides less than 200 hours a year of armory and summer camp training. Any national defense plan based on such an assumption is, of course, unrealistic and erroneous. . . . However, given recruits who have had 1,000 hours of basic training, it could then proceed with refresher training and higher team training. . . . Universal Military Training would provide the National Guard with this basically trained manpower . . . we are the only major power without it. Of 44 members of the United Nations in 1946, thirty-eight had compulsory military service . . . one has a compulsory militia. . . . In total war, the staying power of an army, or a navy, or an air force, and ultimate victory, is in its reserves and in the time these reserves can be brought to bear and the manner in which their efforts are synchronized . . . We cannot get these reserves . . . cannot even rebuild the National Guard at its present authorized strength of around 700,000 men . . . without Universal Military Training. Nor, back of the National Guard and the Organized Reserves, can we without Universal Military Training provide and maintain a pool of trained men in the unorganized reserves on which to draw in wartime. Universal Military Training is thus the foundation for our present military manpower planning. Without it, there would be no effective reserves when needed most nor trained replacements for the regular forces. . . . Without Universal Military Training we could also have a series of new Bataans all over the world. . . . Universal Training as described in the Compton Commission Report is essentially American and democratic. It is built on the equality of all Americans to defend their country, for, in the end, that means to defend themselves. . . . We must quit making irresponsible statements and deliberate misrepresentations to our youth . . . that they are 'not raised to be soldiers,' that war is outmoded, that civilization has discarded war as a means of settling disputes between peoples and nations. We have deceived them in the past and there are people who are deceiving them now. When war has come, we have rushed these same young men, often inadequately trained, to the foxholes and into the air and onto the sea, where a carefully prepared enemy has started shooting at them. . . . We must stop this falsification."

ARMY AIR FORCE

The activities of this unit of our armed force in 1947 were so many and so varied that there is space only for brief mention of the notable events.

In January, a Boeing B-17 "drone" Flying Fortress, remotely controlled by a "mother" B-17 flew a demonstration bombing mission. The drone took off from Eglin Field, Florida, flew to Richmond, Virginia, wheeled out to sea where a dummy bomb was released by remote control, then went on to Washington, circled the city and returned to Eglin Field. A similar demonstration had been flown in 1946 from Hilo, Hawaii to Muroc, California.

Approximately 1,500 Boeing B-29 Superfortresses were saved for future use by a new "cocooning" process whereby a succession of coats of protective spray are applied until the plane is enveloped in an airtight case, seven times stronger than rawhide and designed to keep out harmful moisture for approximately 10 years.

In January, the Consolidated-Vultee Aircraft Corporation moved the Army Air Forces' XC-99 outdoors to install its main landing gear and outer wing panels. Ten months later, on Nov. 24, the XC-99, the world's largest land plane, passed its first aerial test, cruising for an hour over San Diego at a speed of 220 MPH. This giant is double-decked, spans 230 feet across the wing and is 182½ feet long. It will carry 400 troops, 335 litter patients, or 100,000 pounds of cargo. The XC-99 is powered by six Pratt-Whitney, 3,000-horsepower, pusher-type engines, turning 19-foot reversible pitch propellers.

Army Air Forces and Army Ground Forces added the Boeing L-15A, newest member of the "Flying Jeep" family, to its liaison force. It is intended for direction of artillery fire, reconnaissance, aerial photography, and emergency supply operations. It can take off with flaps fully extended and clear a 50-foot obstacle in 600 feet, and, similarly, land over a 50-foot obstacle, coming to a stop in 517 feet. A Boeing XL-15 liaison plane was tested in July. It is unconventional in appearance with gondola-type fuselage and inverted tail surfaces.

The Air Forces' new jet bomber, the Northrop VB-49, was successfully tested. This plane is a jet-propelled version of the Northrop B-35 "Flying Wing," spans 172 feet across the wing but is only 53 feet long, due to the absence of a conventional fuselage. It is powered by eight General Electric J-35 jet engines and has a service ceiling in excess of 30,000 feet. Crew capacity of the "wing" is 13 men.

Lieutenant Colonel Robert E. Thacker and Lieutenant John M. Ard flew non-stop in a North American P-82 Twin Mustang from Hawaii to New York. The plane left Hickam Field, Hawaii, at 8:34 p. m., Thursday, Feb. 27 and landed at La Guardia Field, New York, at 11:07 a. m. the next day, completing the longest fighter mission on record, 5,051 miles.

The Hughes Aircraft Company built a new high speed photo reconnaissance plane, the XF-11. It is a twin-boomed, two-place monoplane, spanning 101 feet 5 inches across the wing and is 65 feet 5 inches long. It is capable of 400 miles an hour speed and has a ceiling of over 40,000 feet. Six cameras are mounted in the nose and booms, with operating controls duplicated in the nose and pilot's cockpit. Special equipment is provided to heat the cameras and to defrost camera windows in high altitude operations.

The VC-97 "Stratofreighter" successfully completed its first test flight at Boeing Field, Seattle, on March 11. Spanning 141 feet 2 inches across the wing and 110 feet 3 inches long, the VC-97 can carry its cargo load a distance of 4,000 miles, at a speed in excess of 300 miles an hour. Its ceiling is 30,000 feet; and it is manned by a crew of five men.

The Consolidated-Vultee XB-36, a six-engine bomber, on March 12, lifted the heaviest load ever lifted from the earth by a plane. Testing at Fort Worth, Texas, it took off at a gross weight of 278,000 pounds.

The Lockheed P-80A "Shooting Star" jet fighter passed the rigid requirements for the installation and performance of armament when a test aircraft successfully fired over 64,000 rounds of standard 50-caliber ammunition without damage to the plane.

The XB-45, one of America's first operational bombers to employ jet propulsion, remained aloft for an hour and 4 minutes in successful test flight at Muroc Air Base, California on March 17. Another jet-propelled bomber, the XB-46, successfully passed its test later, on April 3, at San Diego, California. This is a high-speed, high-altitude bomber. On June 22, the XB-48, built by the Glenn L. Martin Co., Baltimore, Maryland, passed its first test. This jet bomber has a speed of over 480 miles per hour and a tactical radius of over 800 miles.

In October, Boeing's Seattle plant began testing the newest jet-propelled bomber, the XB-47. Radically new in design it uses sharply swept-back wings and tail surfaces. It is powered by six engines, four mounted in pairs slung under the inboard sections of the wing. One additional jet engine is mounted on each wing near the tip.

Cruising 27 per cent faster than the B-29 Superfortresses, and about 50 miles faster than any other Army bomber capable of equal range, the Boeing B-50 qualified in its first tests from Boeing Field at Seattle.

A pilotless Douglas C-54 "Skymaster" made a completely automatic flight from Stephensville, Newfoundland to Brise Norton in England in September, making the trip in 10 hours and 15 minutes.

The first post-war delivery of a Sikorsky R-57 helicopter was made to the Army Air Forces in May. In July, the Air Forces' largest helicopter, the Kellett XR-10 was successfully tested in Pennsylvania. During August, the Bell Aircraft Corporation tested a new five-place helicopter, the XR-12, with a top speed of 105 miles an hour and an operating speed of 90 miles an hour. It can climb vertically at the rate of 450 feet a minute; ceiling 13,000 feet. In September, an R-5 helicopter was flown to Bettles, Alaska, to rescue a trapper stranded on a sand bar.

On Feb. 10, 1947, Norden Bombsight No. 4120, used when the first atomic bomb was dropped on Hiroshima, was presented to the Smithsonian Institution in Washington. On this same date, the Air Forces celebrated the 39th anniversary of the signing of the first contract to purchase an airplane. The 1908 contract called for the purchase of "one heavier-than-air flying machine" for $25,000. On Feb. 16, the All-Weather Airline, familiarly known as the "Green Ticket Run," completed its first six months of operation round trip between Wilmington, Ohio, and Andrews Field, Maryland. On March 16, a 75-mm. howitzer weighing 2,240 pounds was successfully lowered from a Fairchild C-82 Packet by using a series of two ribbon parachutes. During March, the Air Weather Service of the Air Forces started a series of routine weather reconnaissance flights over the North Pole, planning on half-hourly weather observations. In June, the Air Forces announced development of the most powerful turbo-jet engine ever produced. A P-80R "Shooting Star" recaptured the world's speed record on June 19 at Muroc Air Base, flying at a speed of 623.8 miles an hour.

In July, the Air Forces had in operation its new climatic hangar at Eglin Field, Florida. In it can be simulated every extreme of weather conditions, including wind, sleet, snow, rain, and sand storms. On July 23, at Missoula, Montana, planes, for the first time, dropped water bombs on a forest fire. The "Pacusan Dreamboat" broke the international closed course speed record for 10,000 kilometers on July 31, and, four days later, broke another international record when it flew a distance of 8,854.8 miles over a triangular course in 39 hours. In October, the Air Forces again assisted in fighting forest fires, when their planes carried fire-fighters and equipment to the disastrous fire area near Bar Harbor, Maine.

BIRTHDAY ANNIVERSARIES

In addition to the regular service unit anniversaries, two unusual birthdays were celebrated— On March 1, 1947 the Boeing B-17 "Flying Fortress" celebrated its 10th anniversary as a member of the Army Air Forces aerial fleet. On March 11 the 100th anniversary of the occupation of the Presidio of San Francisco by U. S. troops was observed. Two companies of soldiers under command of Major James A. Hardie took possession of the post on March 11, 1947. These troops were part of Colonel Stevenson's New York Volunteers who had reached the newly annexed territory of Alta, California after a sea voyage around Cape Horn.

CEMETERIES

The American Battle Monuments Commission began its work in connection with providing permanent improvements in our cemeteries overseas for the dead of the Second World War, and of erecting suitable memorials to the achievements of our Armed Forces. More than ten thousand of the nation's war dead were returned to their native soil for burial. It is expected that eventually 200,000 bodies will be brought back to the United States. Bodies so returned will be buried in military or private cemeteries at the option of the next-of-kin. The first $75 of private burials will be defrayed by the Government, while national cemetery interment will be entirely at government expense. The first bodies to be returned were landed at San Francisco, Oct. 10.

COSTS OF WAR

The Second World War was almost twice as expensive in lives and 20 times as expensive in wealth as the First World War, according to figures released in April 1947. Comparative statistics show:

Wars	Dates	Total U. S. Troops	Total Dead	Total Cost
Mexican	1846–48	104,284	12,946	$ 139,500,208
Spanish-American	1898–99	408,391	6,472	992,159,840
World War I	1917–21	3,665,000	193,663	21,850,000,000
World War II	1941–	10,200,000	313,000	340,000,000,000

It is estimated that by 1972, accruing costs directly connected with the Second World War will raise the money cost to $700,000,000,000.

EDUCATION

Retention of the U. S. Armed Forces Institute was urged as a needed factor in providing educational opportunity. There are at present about 240,000 individual enrollments under the USAFI program and, since its inception in 1942, cumulative enrollments exceeded 1,700,000.

ARMY ENGINEERS

General Wheeler, Chief of Engineers, announced that in the past 10 years, Army engineers, notwithstanding interruption through war work, had placed in operation 50 reservoirs and 135 local protection projects as part of the continuing program of flood control. The 1948 fiscal year budget called for an appropriation of $163,000,000; an additional $24,000,000 was asked for the Lower Mississippi River Valley.

In March, Army Engineers offered for lease to private industry portions of 31 government-owned industrial plants which had been initially designed for the production of munitions and chemicals.

Some of the construction jobs of the Engineers included: A new runway and new hangar at Mile 26 Field, Alaska; a giant hangar for the heavy bomber base at Rapid City, South Dakota; installation of water and sewer facilities for the Research and Development Laboratories near Yuma, Arizona; initial work in building the greatest medical research center in the world, to be located at Forest Glen, Maryland; barracks and mess facilities for 500 men at Vint Hill Farms Station, Warrenton, Virginia; the erection of 41 buildings, containing 164 military housing units at Andrews Field, Maryland; and the furtherance of the Veterans Administration hospital construction program, estimated to cost $770,000,000.

FOOD

In one year the Veterinary Corps of the Army inspected 1,368,412,978 pounds of food of animal origin. Of this amount, 40,000,000 pounds may be rejected for non-compliance with type, class, or grade, and another 6,000,000 pounds is known to have been rejected, at time of procurement, as insanitary or unsound.

The Army is now spending 32 per cent more a day to feed a soldier than it did in 1946. The value of a garrison ration jumped from 60.07 cents to 79.88; the field ration advanced from 60.07 to 72.88.

In January, 1947 the Medical Department called for 50 additional dietitians, in the grade of 2d Lieutenant, for assignment to Army hospitals.

GUIDED MISSILES

Dispelling a belief of German scientists that parachutes could not be used above 150,000 feet, Army Air Forces engineers devised a system to recover delicate instruments and cameras released from a captured German V-2 guided missile's warhead at an altitude of 500,000 feet, using a series of two newly developed ribbon parachutes.

In the past two years, development of new aircraft and guided missiles by the Army Air Forces, has reduced the V-1 and V-2, Hitler's "secret terror weapons," to the status of obsolete weapons so far as tactical use is concerned. High-speed jet fighters and the new supersonic guided missiles, such as the Gapa rocket, render the buzz bombs obsolete owing to their slow speed and range.

MANEUVERS

The Finn Ronne Antarctic Expedition left Beaumont, Texas, in January, 1947 on the first leg of a trip to the south polar regions. The expedition was loaned $250,000 worth of specialized equipment by the Army Air Forces. In return, the Air Forces will receive a complete report of the cold weather testing of the equipment, as well as the most up-to-date charts, maps, and scientific data compiled by the expeditions scientists.

Newest developments in equipment and techniques used in airborne operations were demonstrated to Air Forces troop carrier and Ground Forces airborne personnel in the Far East. A Fairchild C-82 Packet, modified for the job, was used, three airborne officers and six enlisted men participating. Leaving from Fairfield-Suisun, California, Army Air Field, the plane spent two months in demonstrations over Japan and at other installations in the Far East.

After a period of preliminary instruction in the United States to provide training on snow-covered terrain, five augmented companies of the 2d Infantry Division and Troop Carrier aircraft of the Tactical Air Command were flown into Alaska, beginning Nov. 1, 1947, for Arctic exercises to be terminated in March, 1948. This maneuver was termed "Exercise Yukon."

Appropriately designated "Task Force Furnace," a special unit of Army Ground Forces was assembled and despatched from Fort Knox, Kentucky, to Yuma, Arizona, where summer temperatures exceed 125 degrees during daylight hours. In all, 300 officers and enlisted men participated in the operation. Task Force Furnace did not engage in maneuvers or tactical problems since its sole function was to service testing of equipment required by the Army Ground Forces in desert warfare.

Two thousand paratroopers of the 82d Airborne Division were selected by General Jacob L. Devers, Army Ground Forces, to conduct tests at Pine Camp, New York, from November, 1947, through March, 1948. This specially chosen combat team will receive thorough indoctrination in cold weather operations. It will both test equipment and carry on a full-scale maneuver within the boundaries of the reservation. Tactics and techniques pertinent to air transportation of men and equipment under cold weather conditions will be perfected, particularly for over-snow operations. The group will study airborne resupply and evacuation, involving the dropping of equipment by parachute. Observations will also be made as to the efficiency of gliders and liaison planes on ice and snow. The entire maneuver was christened "Operation Snowdrop," under command of Lieutenant Colonel Robert H. Wienecke, a distinguished veteran of the Second World War.

Latest Army Air Forces techniques and developments in tactical cooperation with ground units were displayed for 1,000 service school students during the entire month of October in a maneuver designated "Operations Combine," held at Lawson Field, Fort Benning, Georgia. Aerial demonstrations were presented by the 9th Air Force, with headquarters at Greenville, South Carolina.

Personnel of "Project Cirrus," the joint cloud physics investigation by personnel of the Army Signal Corps, the Office of Naval Research, and the General Electric Company, conducted their first experiments into the effects of "seeding" storm clouds with dry ice.

"Exercise Seminole," designed to test landing of heavy armored equipment on beaches, was somewhat bogged down at Tyndall Field, Florida, when the too perfect weather of the first week in November was encountered. Floating causeways, lowered on Nov. 3 from LSTS were anchored so far inshore that they were thoroughly grounded when the tide went out. The exceptionally calm weather cut down the waves to the point where the causeways could not be floated and carried out to sea, there to be used as originally planned in unloading the heavy armored vehicles from the LSTS. However, the 2d Armored Division tanks, half tracks, self-propelled guns, and fortified personnel carriers finally plowed through the surf to the shore, towing whatever jeeps had been inundated. All vehicles had their ignition systems waterproofed, and all motor exhausts and carburetor intakes were piped into the air. Secretary of the Army Royall was satisfied with the results of the maneuver and stated that the slight delays encountered only served to emphasize the need for more joint amphibious maneuvers.

The Associated Press, Dec. 2, 1947, printed a release concerning projected atomic tests behind a curtain of absolute secrecy in the remote Pacific. The 145 inhabitants of the Atoll Islands of Aomon and Biijiri will be transported to new and permanent homes. Unlike the surface and underwater atom bomb tests at Bikini Atoll in the summer of 1946, covered by several hundred reporters and foreign observers, the new maneuvers will be under full security restrictions. Eniwetok, with only about 2¼ square miles of land, was chosen for the present tests because of its isolation. There are hundreds of miles of open seas in the direction in which winds might carry radio active particles. Eniwetok lies halfway between Hawaii and the Philippines, and the closest big land area is New Guinea, 1,500 miles to the southwest. Lieutenant General John E. Hull, Pacific commander of the Army, has overall command of the project.

MEDICAL

In the program of 74 hospitals being erected by the Army Engineers for the Veterans Administration, the Chicago project for cancer treatment attracted much attention. This is the only hospital and research center designed solely for cancer treatment in the Army program and, early in January, 1947 specialists in cancer treatment and research met with architect-engineers in Chicago for the planning of this 600-bed institution. Meantime, the Army Medical Department continues to operate its four Deep X-ray centers for deep radiation therapy treatment of cancer. These are located at Walter Reed General Hospital, Washington, D. C.; Beaumont General Hospital, El Paso, Texas; Army and Navy Hospital, Hot Springs, Arkansas; and Letterman General Hospital, San Francisco, California. The highest incidence rate of cancer reported between the years 1941 to 1945 was 0.34 per 1,000 per year or about three men out of every 10,000.

An Aural Rehabilitation Center was dedicated during the year as part of Walter Reed General Hospital's improved facilities for the hard-of-hearing. Work in this special field of rehabilitation and treatment had been begun at Walter Reed in 1943. Later, other Aural Rehabilitation Centers were established at Butler, Pennsylvania, at Borden General Hospital, Chickasha, Oklahoma, and at Hoff General Hospital, Santa Barbara, California. Treatment for impaired hearing has been given to 8,400 patients at these centers.

A new artificial hand was announced during the year. Both cosmetically and mechanically it is far superior to anything perfected to date. The "hook" hand has long been recognized as the best that could be provided from a utility standpoint. In the new mechanism just perfected, the hand operates more effectively for the amputee and, in addition, has the appearance of a natural hand.

Surgeon General Norman T. Kirk strongly advocated establishment of a Medical Service Corps within the Medical Department of the Army. He believes that the skills of highly trained individual specialists could be more effectively and economically utilized by grouping them into one Corps. Centralized procurement and assignment and better supervision and training would also be possible. General Kirk's proposed Corps would be composed of sanitary engineers, pharmacists, optometrists, psychologists, bacteriologists, and similar skilled personnel. When President Truman approved the legislation implementing General Kirk's recommendations, the Medical Service Corps became an operative entity on Aug. 5, 1947. For the first time in its history, the Regular Army can now give commissions to specialists in the scores of fields closely allied to medicine.

Within the Army Air Forces in the Alaskan area, parachutists rescue teams of medical technicians and guides were organized. These teams each included two medical technicians, two Alaskan guides, and a jump surgeon. This is a part of the program to enlarge polar rescue squadron facilities to bring in cases involving aircraft forced down in areas normally inaccessible to ordinary rescue operations.

In July, the Department of the Army announced that the Army's venereal disease rate, at home and abroad, had reached a post-war low. The latest figures available, for May 1947, show a 30 per cent decrease from the post-war high in the summer of 1946.

MUNITIONS

Active research and development in this field covered practically all of the Army's activities. Airplanes were newly developed, old types were remodeled or redesigned for greater speed or maneuverability; rockets and ribbon parachutes were tested at White Sands, New Mexico, chemical agents were studied at Edgewood Arsenal in Maryland; Signal Corps equipment received working tests in New Jersey and elsewhere. Some of the recent munition developments are here briefly discussed.

Considerable work was done in an attempt to perfect American-designed turbo-jet and gas propeller combinations. Engine designs were worked out for pulse-jet and ram-jet engines and rocket devices with thrust values from 3,000 up and with power equivalents of from 3,000 horsepower up. For a transonic research airplane, a multiple-cylinder rocket engine, weighing 210 pounds, was built. For fuel, liquid oxygen and alcohol were used. The most powerful turbo-jet engine yet made, was built at Burbank, California. It is named the XJ-37 and developed a rated thrust of 5,000 pounds.

A new way was found to manufacture nitromethane, a more powerful explosive than TNT, by reacting methane with nitric acid.

The Army Air Forces, the National Bureau of Standards, and the Bendix Aviation Corporation joined forces to develop a simple and practical liquid oxygen converter which meets all requirements in flying operations.

A new type of synthetic non-petroleum motor oil was made from natural gas and carbon and hydrogen compounds. It resembles ordinary motor oil in appearance and feel; is wax-free; flows freely at 30 degrees below zero and does not thin out at high temperatures; and lasts the lifetime of an automobile or airplane engine without having to be changed.

In Alaska and the Aleutians, a new heat tablet, Troxane, was tested. Burning without odor or poisonous gases, it produces a steady blue flame not easily blown out by the wind. The Quartermaster Corps also issued a new water-purifying tablet which uses iodine instead of chlorine as its active agent. This new tablet makes drinking water less objectionable in taste and color.

At the Evans Signal Laboratory in New Jersey, a new light weight radar set, the AN/TPS-3, was designed. Weighing 1.340 pounds, it can be transported by plane and set up forward in areas not easy to reach with heavier detector equipment. This new set requires one operator and one maintenance man and withstands temperatures between 40 degrees below zero and 140 degrees above. Within the Signal Corps field there was also developed a new micro-wave spectroscope for the analysis of chemical substances, using radio waves to identify the more complicated molecules, such as hydrocarbons, without the tedious work necessary to effect chemical breakdown and analysis.

TELERAN

The Army Air Forces, working with the Radio Corporation of America, made definite advances in the perfection of teleran, the revolutionary system of television-radar air navigation and traffic control. Teleran provides the air pilot with an aerial roadmap, which, in a single picture on his instrument panel, shows traffic route, weather, and special information needed for safe and successful air navigation. To improve teleran, four new advances were demonstrated, (1) a storage orthicon pick-up tube, (2) a picture tube employing high-intensity phosphors for greater image brilliance, (3) an optical map-mixing technique which improves the composite teleran image and simplifies insertion of additional information when required, (4) a time multiplexing system which provides for simultaneous transmission of images representing different altitude layers and selective reception of the proper image by planes in any of these layers.

OPTIPHONE

The Signal Corps also introduced the optiphone which makes possible telephone communication over a narrow beam of white or dark-red light. The complete unit weighs 145 pounds, has an optical range up to four miles during daylight and, with dark-red filter, up to seven miles at night. It provides single-channel, two-way break-in speech communications.

NEW SUPERSONIC WIND TUNNEL

At Pasadena, California, the Air Corps has under construction a new supersonic wind tunnel, the first of its kind in the United States. It will cost

$2,384,000 to build and is designed to test the characteristics of ram-jet motors and other rocket type motors.

NATIONAL DEFENSE PLANNING

During 1947, formation of Industry Advisory Committees to aid in National Defense planning was begun. Membership in these committees will be comprised of representatives of United States industry. When formed, these committees will aid the Army-Navy Munitions Board in planning for future emergencies, in the creation of an industrial mobilization plan, and in the Army-Navy stockpiling program. This latter function, authorized under Public Law 520, provides the procurement and maintenance of adequate stockpiles of strategic and critical materials.

NATIONAL GUARD

As of Aug. 1, 1947, the strength of the National Guard was 107,711. Announcement was made that "Operation 88,888" would be conducted during the period Sept. 16 to Nov. 16 to enlist an additional 88,888 men. By Oct. 25, Major General Kenneth F. Cramer, Chief of the National Guard Bureau, announced that organization of the National Guard had passed the half-way mark with 3,251 ground and air units Federally recognized out of a total allotment of approximately 6,380. In the final week of "Operation 88,888," the National Guard enlisted 17,539 men, raising its strength to 195,026 as of Nov. 16, 1947. This put the Guard two months ahead of its planned rate of growth during the current fiscal year. Congressional appropriations provide for growth of the National Guard to a strength of 271,000 men by June 30, 1948.

ARMY NURSES

On July 18, 1947, Colonel Florence A. Blanchfield, Superintendent of Army Nurses, became the first American woman to receive a full commission in the Regular Army of the United States. Thus the Army nurses came to full recognition in the service, a growth which traces its development back to 1861 when Dorothea Dix was made first superintendent of nurses in the Army. This present development comes under the provisions of Public Law 36 of the 80th Congress which grants permanent commissioned status to members of the Army and Navy Nurse Corps and establishes a Women's Medical Specialist Corps in the Regular Army.

OCCUPATION FORCES IN GERMANY AND AUSTRIA

During the first week in January, 1947, economic merger of the American and British Zones of Germany became effective. Operating responsibility for the production and distribution of food and industrial goods for the combined area was turned over to German Administrative Agencies under American and British supervision and control. In November the Departments of State and Army and the Office of Military Government for Germany announced promulgation of Military Government Law No. 59 providing for the restitution of identifiable property which was taken from its owners by the Nazis during the period from Jan. 30, 1933 to May 8, 1945.

In Austria, agreement was reached in Allied Council on a plan to alleviate the food situation, operate the denazification law, and determine occupation costs for the first quarter of 1947. Fuel and power shortages, intensified by severe weather conditions, were responsible for industrial and transportation slowdown. Soviet Russia's refusal to discuss Austrian affairs financially within the Allied Council added to the occupational government problem. When the Foreign Ministers Conference failed in April to produce an Austrian treaty, the people of Austria began to be alarmed regarding the economic results of continued occupation. When the Austrian Government sought in May to proceed with plans for future development of civil aviation in their country, their efforts were blocked by the Soviets. Three important financial arrangements were concluded in mid-year between the United States and Austria. These were: (1) The signing on June 21 of an agreement whereby the United States assumes all of its occupation costs after July 1; (2) the signing on June 25 of an agreement on the use of Austria's portion of the $350,000,000 relief program provided by the American Congress for devastated countries of Europe, and; (3) an agreement signed on June 29 whereby the United States turns over to the Austrian Government 308,382,590 schillings as final settlement of all occupation costs prior to July 1, 1947.

JAPAN AND THE FAR EAST

General MacArthur reported definite progress in Japan toward a democracy. Japan's new laws created a popularly elected upper house, replacing the former hand-picked elite of the old House of Peers. Buckling down to their task, party leaders in Japan focused attention on possible measures to stem the rising tide of inflation. It appeared that MacArthur's New Year's Day message (1947) was being taken seriously everywhere. He had told the people that the successful implementations of projected reforms charted under the occupation hinged on "the manner in which the Japanese people themselves discharged their new political responsibilities." In September, MacArthur reported that the newly elected Diet produced the first cabinet to serve under the new Constitution and entrusted the country's leadership to the first Christian prime minister, Tetsu Katayama, Social Democrat, ever chosen in the history of Japan.

In Korea, the first general election held since 1910 indicated that the Koreans were anxious to take a real and progressive part in the government of their country. In the early part of 1947, commercial activity in southern Korea was generally on the upswing although complete industrial recovery was seriously retarded by the shortage of raw materials, lack of skilled labor, and currency inflation. Hope for the democratic emergence of Korea lies in the Interim Legislative Assembly, with 45 elective and 45 appointive members, in session starting in December 1946. As Koreans showed ability in handling their own affairs, United States authorities in South Korea absorbed many more Koreans into influential government posts. In March, Koreans took further steps to prepare for ultimate self-government as the Interim Legislative Assembly considered drafts of a temporaray constitution based on democratic principles and of a General Franchise Law which would give all men and women over 20 years of age the right to vote. In May, the Korean Assembly passed three measures which constituted definite steps in advancement. These were the Summer Grain Collection Law, the National University Bill, and the Child Labor Law.

Reclamation of war devastated areas, rebuilding of local industries, and resettlement of lands formerly occupied by the military were the major rehabilitation concerns of 833,000 people of the Ryukyu Islands. In March 4,222 persons were resettled on Ie Shima which had been uninhabited for two years.

ARMY OFFICERS

In January, 1947, a small increment of the total of 25,000 officers authorized by Act of Congress for the Second Regular Army Integration Program was sworn in. At that time it was announced that the Army Air Forces would bring in 10,000 officers under this program in 1947. In May, 9,209 successful officer candidates were integrated; of these, 6,264 were sworn in as Air Forces officers. This increment brought to nearly 22,000 the number of persons selected as Regular Army officers since the program began in the summer of 1946.

In November, the Department of the Army and the Department of the Air Force announced that eligibility requirements for competitive tours of active duty leading to commissions had been broadened. The new policy permits officers, who are high school graduates but who do not have two years of college, to take an Educational Development test to establish eligibility in lieu of the college education previously required.

QUARTERMASTER CORPS

Preliminary tests of Army tableware made of molded plastics indicate that these items have many advantages over china dishes for military uses. Plastic soup bowls and cups were used by the Admiral Byrd Antarctic expedition with great savings resulting through reduction in breakage. For field duty, plans were made to use a plastic spoon which may be thrown away after it is used for one meal.

Fresh vegetables for use with Army rations in overseas installations where they can not otherwise be supplied, are being produced successfully by hydroponic gardening. This garden method, also known as nutriculture, water culture, and chemi-culture, consists of beds of gravel, stones, cinders, or other inert materials in which vegetables are grown by supplying them with water and the nutrient chemicals necessary for their growth. Hydroponic gardens were operated on Iwo Jima, in British Guiana, China, and Japan. Two gardens in Japan—one of 55 acres at Chofu in the Tokyo area and another of 25 acres at Otsu in the Kyoto area, produced a total of 2,000,000 pounds of tomatoes, 310,000 pounds of lettuce, 200,000 pounds of radishes, 440,000 pounds of cucumbers, 170,000 pounds of onions, and 60,000 pounds of peppers, or a total of 3,180,000 pounds of vegetables. This would be enough to supply eight salad meals per week for 100,000 military personnel and their dependents.

A solution of the beverage milk problem for troops was found by dairy experts of the Quartermaster Corps. Mechanical recombination of the solid ingredients of milk with butter, oil, and water was found to produce satisfactory drinking milk, and plants for this new production system are planned for Japan, Korea, the Philippines, Guam, and Okinawa.

The Quartermaster Corps did considerable work in trying to develop a "glad sack," or new type inflatable sleeping pad so that troops could sleep on the snow or cold ground with adequate protection from chilling due to loss of heat.

RADAR

Long-range radar units, designed for exact plotting of aircraft, and worth about $1,000,000, were installed at Washington, D. C. National Airport and at Andrews Field, Maryland. In February, long range radar equipment was installed on the grounds at Queens College, near La Guardia Field, New York, to test the value of such radar devices in the control of heavy air traffic over cities similar to New York.

The first all-radar airway was installed in Alaska, using navigational beacons known as "racon" at seven installations.

During the year, direction-finding equipment was installed and put into operation at 18 locations. These were of the same type used successfully in the Second World War, and were installed primarily to assist military aircraft.

Under an agreement reached between the Army Air Forces and the Pan-American World Airways, the Pan American received an AN/cps-5 search radar unit with a range of about 150 miles.

The Army Air Forces announced perfection of an automatic radar landing system which, used with a standard Ground Controlled Approach unit, will electronically and without human aid bring an aircraft to within a few feet above a runway. The new system will enable a speed-up of the present landing system, which permits only one aircraft at a time on the glide path. Installed, the new device weighs about 75 pounds and costs approximately $10,000.

RECRUITING

The Department of the Army, to encourage enlistments, announced that, starting in 1948, Army enlisted personnel will have opportunity for specialized education, advancement in grade, and commissioning in the Officer's Reserve Corps and in the Regular Army. Each job in the Army is carefully analyzed and, through a new system of personnel procedures, the effort will be to get the right man into the right job at the right time.

ARMY SCHOOLS

Early in the year, the Chaplain's School, Adjutant General's School, and the Provost Marshal's School were moved to Carlisle Barracks, Pennsylvania. These historic Barracks housed the first military school in United States history, the School for Artillerists established in 1777. Later in the year, the Adjutant General's School was transferred from Carlisle to Camp Lee, Virginia.

The Command and General Staff College at Fort Levenworth, Kansas, was transferred in January from the jurisdiction of the Department of the Army to that of the Commanding General, Army Ground Forces. This institution had been founded originally, in 1881, as the "School of Application for Infantry and Cavalry."

In line with the Army's specialized training program, a new Special Services School was established at Fort Monmouth, New Jersey, Feb. 15, 1947.

Increasing emphasis was placed during the year upon joint schooling of officers from the three services. Plans called for at least 900 selected officers of the services to be studying together in advanced service schools. At the National War College in Washington, D. C., 30 officers each from the Army Ground Forces, Navy, and Army Air Forces, and ten from the State Department were registered for the second course starting in September.

ARMY TRAINING

Reopening of Aviation Cadet pilot training was announced in January, 1947, first quotas to be filled by qualified Regular Army enlisted men of the Army Air Forces. Under this program, during the Second World War, more than 1,250,000 volunteered for air crew training and 700,000 qualified. It is expected that 3,000 cadets will be in training in 1948.

In the first cruise of its kind for Army ROTC students, 49 students of the ROTC detachment at the University of Washington left Seattle, Washington, on March 21 aboard a Transportation Corps freight supply ship bound for Ketchikan and Juneau, Alaska. On their 10-day cruise, the cadets were afforded practical training in military transportation methods aboard small vessels. In July, 149 ROTC cadets, representing 13 universities, went to sea for similar training.

The former eight weeks basic recruit training program was on May 5, 1947 lengthened to 13 weeks. This increase was made possible by the easing of demands for personnel overseas.

The Director of Personnel and Administration in the General Staff perfected and put into operation an extensive program of training in industrial personnel methods designed to familiarize Army officers with the latest techniques in personnel management. By May, four industrial firms had already accepted officer students and 35 more large industries had signified their willingness to join in the program.

To lend realism to field training, the Ground Forces designed and put into effect an interesting expedient. Instead of dividing participating forces into "reds" and "blues" with colored arm bands as the only distinguishing feature between friend and foe, distinctively dressed "enemy" forces met combat units being trained in the field. The enemy was designated "Aggressor" and was clad in forest green uniforms with helmets of the same color. Noncom chevrons were worn on the sleeve between the elbow and the wrists with points down. Officers' ranks were indicated by devices foreign to normal Army usage. Prisoners were taken and "enemy dead" dummies were found on the "battlefields" by the maneuvering troops. Aggressor artillery's flash, smoke, and noise was represented by electrically exploded cellulose nitrate balls in special firing tubes, while other battle sounds were created by mobile sound-amplifying units. Heavy equipment consisted of life-like pneumatic mock-ups.

MILITARY LESSONS OF THE SECOND WORLD WAR

Lieutenant General Collins, Deputy Chief of Staff, speaking before civilian groups, gave frank analyses of the direct and contingent effects of the Second World War. He particularly stressed these lessons in relation to future security of the United States. Some of his material is repeated here.

General Collins recognized that the outstanding military lesson gained from the Second World War is that airpower is the dominant factor of present day warfare. The next most important lesson is the tremendous importance of scientific developments. Unity of command, as demonstrated by the operation of General Eisenhower's headquarters in the European Theater, pointed the way to command cohesion in future armed conflict. Back of these military elements was the convincing demonstration that America's ultimate strength lies not in superior numbers of men nor in superior quantities of raw materials but in her matchless skilled labor, industrial know-how, and productive plant. These are the basic sinews of war as well as the heart of our peacetime position.

In reviewing the world situation today, General Collins said: "Germany is no longer a threat as a military power . . . from the viewpoint of manpower alone, the British Empire will probably never be as strong again as it was in the past. . . . France from a military viewpoint is relatively impotent . . . from the manpower standpoint China is potentially a great military power but is too torn with internal strife to capitalize on her favorable . . . position. . . . This leaves us with the fact that the United States and Russia are the two predominant military powers in the world today."

Since the Second World War, the United States Army has demobilized 90 per cent while the Russians have reduced their ground forces ⅔ and their air forces about ⅓. What then of necessities in case we face major war again?

The first thing we must learn is to reckon the capabilities of other powers rather than probabilities. Having arrived at an estimate, what do we need and, of this need, what do we have? There was no such American cold-blooded estimate of the military capability of Japan—hence Pearl Harbor.

For modern war, which is perforce total war, the United States should have in being an M-Day force ready for immediate action. This force is planned as 1,750,000, comprising: Regular Army, 10 Divisions and 70 Air Groups; National Guard, 27 Divisions and 27 Air Groups; and some 200,000 Reserves in service units. To back up this sizable M-Day force, a pool of trained men is required. Procurement of this pool depends entirely on the successful operation of Universal Military Training.

IX. DEFENSE AND ARMAMENT

ADMINISTRATION OF VETERANS AFFAIRS

By Carl R. Gray, Jr.
Administrator of Veterans Administration

ORGANIZATION AND FUNCTIONS OF THE VETERANS ADMINISTRATION

The Veterans Administration is an independent establishment of the United States Government charged with administering benefits provided by law for nearly one-third of the nation's population—veterans of all wars and their families. The agency, headed by an Administrator of Veterans Affairs, was created by Executive Order No. 5398, July 21, 1930, issued under authority of an Act (46 Stat. L, 1016) approved July 3, 1930. Its original purpose was to unify the work of numerous Federal bureaus which, at that time, were administering benefits to veterans and their beneficiaries.

VA entered the American scene at the beginning of a severe depression, at a time when veterans problems of earning a living became increasingly acute. The uncertainties of the period were reflected in the fact that First World War veterans began to swell VA's rolls to record high levels; also, applications for hospitalization and domiciliary care increased steadily, with a number of cases resulting from mental and physical ailments caused by the hardships of the depression.

The 4,000,000 First World War veterans constituted a serious employment problem during the 1930's, because many employers were reluctant to hire men of their age. VA cooperated with the U. S. Employment Service of the Department of Labor and with other Federal agencies in efforts to find work for them.

GROWTH AND SCOPE OF VETERANS ADMINISTRATION

Severe as VA's problems were in those days, they faded into relative insignificance by the time Japan surrendered in the summer of 1945. From then on, the number of servicemen and women discharged from the armed forces increased with ever gathering momentum. Between October, 1945 and February, 1946, they returned to civilian life at the rate of more than 1,000,00 each month.

By Nov. 1, 1946, the number of living veterans of all wars totaled 17,441,000; 13,490,000 had served in the Second World War. A year later, on Nov. 1, 1947, the total number of living veterans increased to 18,514,000 of whom 14,625,000 saw active duty in the Second World War.

Meanwhile, VA's relationship with these millions of veterans had been augmented by a number of new laws designed expressedly to help homecoming servicemen and women make smooth adjustments to civilian life.

Most important of these laws was the Servicemen's Readjustment Act of June 22, 1944 (Public Law 346, 78th Congress), as amended. Generally known as the G.I. Bill, the Act applies (with some exceptions) to any Second World War veteran discharged under conditions other than dishonorable after 90 days or more of service, or discharged by reason of an injury or disability incurred in line of duty. Broadly, it provides for educational and vocational training aids; guaranty by VA of loans for homes, farms, or business purposes; payment of readjustment allowances to unemployed or self-employed veterans; and other benefits geared to help veterans help themselves readjust to civilian life.

To bring its services closer to the veteran and his family, VA decentralized a number of its functions in 1945. In addition to a Central Office in Washington, D. C., VA has 13 branch offices throughout the United States to supervise the field operations of nearly 1,000 VA offices, hospitals, and homes in the continental

United States and in Alaska, Hawaiian Islands, Puerto Rico, and the Philippines.

On Nov. 1, 1947, the total of nearly 1,000 included 736 field offices (formerly known as contact and subregional offices), 70 regional offices (9 of which were located at VA centers), 126 hospitals (21 of which were located at VA centers) and 12 homes. VA's Central Office exercises general control over all these operations.

The vast scope of VA's far-flung operations is indicated by the fact that the agency maintains 103,000,000 veterans records and other records of various types, and that it received an estimated 175,000,000 pieces of mail during the fiscal year ended June 30, 1947.

EDUCATION AND TRAINING

Education and training for Second World War veterans is authorized by two laws: Public Law 16, 78th Congress (as amended by Public Laws 346, 78th Congress; 268, 79th Congress; and 239 and 338, 80th Congress) and Public Law 346, 78th Congress (as amended by Public Laws 679, 79th Congress; and 239 and 377, 80th Congress).

Public Law 16—the Vocational Rehabilitation Act—pertains to eligible veterans with disabilities, whose employability can be restored with proper training. Public Law 346—the G.I. Bill of Rights—has been designed for eligible able-bodied veterans.

The two laws differ in their general application, in that Public Law 16 gives VA a high degree of responsibility for the guidance and welfare of the disabled veteran, while the G.I. Bill holds VA's supervisory responsibility toward able-bodied trainees to a minimum.

TRAINING FOR THE DISABLED

Veterans with service-incurred or aggravated disabilities, in need of training to restore employability and make them self-supporting members of their communities, can enroll in educational institutions or on-the-job training establishments under Public Law 16.

They first must undergo extensive advisement and guidance tests and interviews by trained VA personnel in selecting their courses. The guidance continues throughout their training.

While in training, and for two months after his employability has been established, a disabled veteran may receive a subsistence allowance of $65 a month if he has no dependents or $90 a month if he has dependents, in addition to his disability compensation.

If the compensation plus the subsistence allowance does not total $105 (without dependents) or $115 (with one dependent) for a veteran with a disability rated at less than 30 per cent, an additional sum will be paid to make up the difference. The minimums for a veteran with disabilities rated at 30 per cent or more are $115 (without dependents) and $135 (with one dependent). In both categories, additional sums will be paid if the veteran has more than one dependent.

A disabled veteran taking on-the-job training under Public Law 16 may receive wages while he trains. However, if the wages plus subsistence payments exceed the journeyman rate for a trained worker in that occupation, VA will reduce the subsistence allowance proportionately. His other VA payments remain the same.

If a veteran enrolls in school under Public Law 16, VA pays for his tuition and fees, books and supplies. If he takes on-the-job training, VA provides the necessary tools and equipment.

By Nov. 1, 1947, a total of 244,780 disabled veterans were in training under Public Law 16. Of these, 136,884 were enrolled in educational institutions and 107,896 were taking on-the-job training. At the same time, 20,649 Public Law 16 trainees were declared rehabilitated. This figure accounts for only 17 per cent of the 123,613 disabled veterans who had interrupted their training for one reason or another.

TRAINING FOR THE ABLE-BODIED

Veterans in training under the G.I. Bill can choose their place of study or their job training establishment, if the institution or establishment has been approved by an appropriate state approving agency. The amount of education or on-the-job training to which these veterans are entitled depends on their length of active military service and ranges up to two years, in the case of on-the-job training of a non-apprenticeship nature, or 48 months in the case of apprenticeships or institutional courses.

If a veteran enrolls in an educational institution, VA will pay his tuition, fees, and book and supply costs up to a $500-a-year maximum. If he takes a full-time course, he will receive a $65 a month subsistence allowance if he has no dependents, or $90 a month if he has dependents. If he takes on-the-job training, he retains whatever wages are paid him, but if his salary, plus subsistence, surpasses the wage of a beginning trained journeyman, VA will cut his subsistence allowance accordingly. Also, a veteran's subsistence allowance will be reduced if his combined monthly income, subsistence and wages, totals more than $175 if he has no dependents or $200 if he has dependents.

By Nov. 1, there were 2,413,576 veterans in schools and job training establishments under the G.I. Bill. The majority of them, or 1,859,545, were enrolled in educational institutions, while the remaining 554,031 were taking on-the-job training.

At that date, some 1,892,264 former G.I. Bill students and trainees had dropped their courses. All but a mere 8,400, who had used up all their available entitlement, are eligible for further training. G.I. Bill discontinuances totaled approximately 44 per cent of the 4,305,840 who had entered training, under that program.

Most education and training, both under Public Laws 16 and 346, ends July 25, 1956. G.I. Bill education and training, for the majority of veterans, must begin before July 26, 1951.

An exception has been made for persons who enlisted between Oct. 6, 1945 and Oct. 5, 1946, under Public Law 190, 79th Congress, the Voluntary Recruitment Act. The period during which they can earn entitlement to all G.I. Bill benefits—education, training, loan guaranties and readjustment allowances—will not expire until the end of their enlistment.

G.I. LOANS

Public Law 346 (amended by Public Law 268, 79th Congress, and 239, 80th Congress) establishes provisions for the guarantee of loans or the insurance of credit, through private lending institutions, for Second World War veterans who desire to buy or build homes, purchase farms or farm equipment, or go into business. The amount of the guarantee may not exceed 50 per cent of the loan, or a maximum of $4,000 on real estate and $2,000 on non-real estate loans. If a veteran receives loans of both types, the maximum guarantee is prorated on these amounts. Farm realty loans must be paid off within 40 years; other real estate loans, within 25 years; and non-real estate loans, within 10 years. By Oct. 25, a total of 1,089,201 G.I. loans of all types, amounting to more than $6,000,000,000, had been approved for guarantee or insurance by VA.

Nearly 90 per cent of the loans, or 971,565, were for homes. These loans amounted to over $5,600,000,000; of the total, VA guaranteed and insured more than $2,600,000,000. Farm loans numbered 36,711, for a total of $141,400,334. The guaranteed and insured portion amounted to $65,421,421. Business loans reached 80,925. Principal amount of the loans was $257,517,817; the guaranteed and insured portions totaled $98,559,726.

A VA analysis of G.I. home loan figures over a four-month period (May through August, 1947) revealed that over 45 per cent of the veterans utilizing their loan guarantee privileges bought newly built houses at an average selling price of $8,200. The remaining veterans purchased homes previously occupied for sales prices averaging $6,675.

Veterans entering business with the help of guaranteed loans displayed a high degree of ingenuity. One ex-G.I. in Lowry, S. D. bought 2,000 turkey poults and necessary feed and equipment; later sold them at a large profit; repaid his loan in full nine months later. Another veteran in Minneapolis, Minn., realizing that precision gears were in short supply throughout the country, used his G.I. loan to open a manufacturing plant that immediately was flooded with orders for $300,000 worth of gears. Three Denver, Col. veterans obtained a guaranteed loan to enter the exterminating business. Starting on a small scale by exterminating cockroaches and termites in buildings, they expanded to eradicating pests in barns and graneries and to spraying fields and swamps by airplane. A veteran in Spartanburg, S. C., realizing the necessity of a diaper service after he became a father, borrowed $4,000 under the G.I. Bill to establish such a service.

The deadline for applying for G.I. loans is July 24, 1957 for most veterans except enlistees under the Voluntary Recruitment Act.

READJUSTMENT ALLOWANCES

The readjustment allowance program, established by Public Law 346 (as amended by Public Law 239, 80th Congress) provides financial assistance for eligible veterans during periods of unemployment or when self-employed and earning less than $100 a month. A totally unemployed veteran may receive $20 a week; a partially employed veteran may receive up to $20 a week, less earnings above $3. A self-employed veteran may receive $100 a month, minus any net earnings during the month. Maximum unemployment allowance entitlement is for 52 weeks; for self-employment, 10⅘ months.

Through agreements with VA, claims for readjustment allowances are handled by local public employment offices of unemployment compensation agencies in the states, territories, and the District of Columbia. A veteran wishing to apply must present his discharge or separation papers at the public employment office.

An applicant for unemployment allowances can be disqualified if (1) he leaves suitable work voluntarily without good cause; (2) he fails, without good cause, to apply for suitable work to which he has been referred; (3) he fails to attend an available free training course designed to increase his chances of obtaining a job.

During the week ending Nov. 1, 395,939 veterans claimed readjustment allowances for unemployment. During that week, state unemployment compensation offices paid out more than $7,600,000. In October, 102,757 veterans claimed self-employment allowances. State unemployment compensation offices during the month disbursed nearly $10,000,000 in self-employment claims. Allowances may be claimed through July 24, 1949, or two years after the date of discharge, whichever is later, but not later than July 25, 1952, except for enlistees under the Voluntary Recruitment Act.

MEDICINE AND SURGERY

The urgent need to expand VA's medical services to veterans, and at the same time make available medical care second to none, prompted the reorganization of the agency's Department of Medicine and Surgery. Public Law 293, 79th Congress (Jan. 3, 1946) authorized VA to employ—without regard to the civil service Classification Act of 1923, as emended—physicians, dentists, nurses, and other professional and non-professional personnel at such rates of pay as VA prescribes. The bill also authorized VA to establish residencies for physicians in its hospitals and clinics.

The medical staff of the Department of Medicine and Surgery, on Oct. 1, numbered nearly 3,500 full-time physicians; about 2,200 specialists (attending physicians and consultants); and about 1,350 Army and

Navy doctors detailed to VA for duty under the ASTP and V-12 training programs. In addition, nearly 1,950 physicians, taking part in the residency program, were serving patients on a part-time basis and were expected to join the full-time medical staff at the end of their training.

On the same date, 126 hospitals were in operation by VA, including a number of temporary structures declared surplus by the armed forces. More than 101,200 beds were available for use in VA hospitals, in addition to nearly 13,000 beds in other Federal government, state, and civil hospitals. The 101,200 beds in VA hospitals included 11,500 beds for tuberculosis cases, 55,100 beds for neuropsychiatrics, and 34,600 beds for general medical and surgical patients. VA hospitals, on Oct. 1, were offering these services for veterans with service-connected disabilities as well as for those with nonservice-connected ailments unable to pay for private treatment.

SPECIALIZED HOSPITAL SERVICES

Neuropsychiatric Service. — Well over half of all patients in VA hospitals are neuropsychiatric cases, for whom 34 hospitals are in operation. NP patients in other types of VA hospitals are treated in mental convalescent centers or special treatment centers. Eighty-six mental hygiene clinics are treating those veterans not requiring hospitalization. Thirty-four of these clinics are located at VA regional offices and 52 are contract clinics.

Tuberculosis.—VA operates 18 tuberculosis hospitals, in addition to TB departments in its general hospitals and TB-NP units in its neuropsychiatric hospitals. VA is conducting a large-scale TB case-finding program, taking a chest X-ray of each veteran as he is admitted to a hospital, and of each veteran in a VA outpatient clinic at the time of his examination. About 1,250,000 veterans are being X-rayed each year through this program; the purpose of which is to insure early diagnosis and prompt treatment. The agency, in addition, is cooperating with the Army and Navy in extended streptomycin projects.

Surgery.—Surgical facilities, available in all VA hospitals, consist of surgical operating suites and the necessary trained personnel. The Surgical Service consists of general surgery, orthopedic surgery, urology, ophthalmology, otolaryngology, audiology, plastic surgery, thoracic surgery, neurosurgery, gynecology, radiology, and anesthesiology.

General Medicine.—Seventy-four general medicine and surgery hospitals are in operation by VA. General medicine also is practiced in tuberculosis and neuropsychiatric hospitals. In addition, outpatient treatment for service-connected medical conditions or conditions aggravating a service-connected disability is available in VA regional and sub-regional offices.

Clinical Laboratories.—The services of clinical laboratories are maintained in all VA hospitals and regional offices, aiding in treatment and diagnosis. Clinical laboratories perform more than 1,200,000 examinations each month.

Dental Service.—Eligible veterans may receive dental care on an outpatient basis in VA clinics as well as from private dentists participating in VA's home-town dental care program. In-patient treatment is available at all VA hospitals for eligible patients.

Prosthetic Service.—The objective of the Prosthetic Service is to furnish the best available devices to all veterans requiring artificial limbs, hearing aids, braces, orthopedic shoes, and special equipment for the blind. In general, an eligible veteran has the free choice of appliances. A nationwide service system has been established so that he may obtain immediate repair service, up to a $35 maximum, with VA paying the bill.

Medical Rehabilitation.—As a patient's medical and surgical care progresses, he undergoes an intensive course in medical rehabilitation, designed to help him when he leaves the hospital. He must learn how to get up and down steps, on and off buses, cross streets, go shopping, and the like. If he wishes to further his education or to explore post-hospital job possibilities, complete academic programs and vocational rehabilitation programs are available.

VA HOMES

A patient, to be admitted to any of VA's 12 homes, must have a condition essentially chronic in character, not susceptible of cure or decided improvement by hospital treatment, and must be incapacitated from earning a living for a protracted period. More than 14,600 veterans were in VA homes on Nov. 1, 1947.

INSURANCE

National Service Life Insurance for servicemen and women in the Second World War was authorized by Public Law 801, 76th Congress. It could be obtained in amounts of not less than $1,000 or more than $10,000, in multiples of $500.

NSLI originally was issued on a Five-Year Level Premium Plan, which means that premiums are paid at a fixed rate for insurance protection alone; the policies do not have cash, loan, paid-up, or extended insurance values. This form of insurance obviously provides the maximum temporary protection at the lowest cost. The term period of all NSLI issued before Jan. 1, 1946, was extended three more years by Public Law 118, 79th Congress. Therefore, these policies may be continued in their original form for eight years from the date of issue.

Within the last seven years, VA wrote more than 19,200,000 NSLI policies having a total face value of over $150,000,000,000. On Oct. 1, less than one-third, or an estimated 5,956,500 policies, still were in force. Nearly 4,800,000 of these were term policies; the remainder were policies converted to the half-dozen VA permanent plans available: ordinary life, 30-payment life, 20-payment life, 20-year endowment, endowment at age 60, and endowment at age 65.

As a direct result of war casualties and other deaths, the beneficiaries of 395,544 Second World War veterans were receiving insurance payments on Oct. 1, 1947.

U. S. Government Life Insurance for First World War servicemen was authorized by amendment to the War Risk Insurance Act (Public Law 90, 65th Congress). About 4,400,000 persons applied for War Risk Insurance between Oct. 6, 1917 and Dec. 31, 1918, for an amount of nearly $39,000,000,000. Over 524,000 of these policies which had been converted to U. S. Government Life Insurance were in force Oct. 1, representing nearly $2,300,000,000 of insurance.

PENSIONS AND COMPENSATION

VA pays monthly pensions and compensation to more than 3,200,000 disabled veterans and dependents of deceased veterans. Payments range from $13.80 to $360 a month for service-connected disabilities. On Nov. 1, 1947, the following cases were on VA's compensation and pension rolls:

War	Living Veterans	Dependents of Deceased Veterans
Mexican War..........	0	45
Indian Wars...........	797	2,278
Civil War.............	83	17,895
Spanish-American War..	112,355	80,679
First World War.......	438,121	389,232
Regular Establishment..	42,692	19,291
Second World War.....	1,712,696	416,370

OTHER VA FUNCTIONS

Guardianship.—VA's guardianship load rose from 134,583 wards on Nov. 1, 1946 to 177,761 wards one year later. Of this latter figure, 93,591 were entitled to benefits because of service by veterans of the First World War and earlier wars, and 84,170 were entitled to benefits because of service by Second World War veterans.

Construction.—Since VA will have thousands of potential applications for hospital service, it has embarked upon the greatest hospital construction program this country has ever witnessed. Expected to cost over $1,000,000,000, the program will provide 91 new hospitals and a number of additions to existing hospitals. The new buildings will be located near medical centers, whenever possible, to take advantage of existing facilities for training and research.

Contact Service.—Contact representatives are located in populated areas throughout the United States and insular and overseas possessions, to advise veterans, their dependents and beneficiaries of their rights and benefits. A total of about 24,000,000 personal contacts were made by VA contact representatives during the fiscal year ended June 30, 1947.

In addition to all these functions, VA is charged with administering several lesser benefits to veterans.

THE UNITED STATES NAVY

By W. J. Lederer

Commander USN; Office of Information, Navy Department

ORGANIZATION

At the close of 1947, the administrative organization of the United States Navy was headed by John L. Sullivan, Secretary of the Department of the Navy, with W. John Kenney as Under Secretary and John Nicholas Brown as Assistant Secretary (Air). On Dec. 15, Admiral Louis E. Denfeld, U.S.N., relieved Fleet Admiral Chester W. Nimitz, U.S.N., as Chief of Naval Operations. Admiral Denfeld was, at that time, Commander in Chief of the Pacific and U. S. Pacific Fleet. His new appointment left those important positions open and forecast sweeping changes for 1948.

As of Dec. 14, 1947, the top Naval assignments were as follows: Chief of Naval Operations: Fleet Admiral Chester W. Nimitz, U.S.N.; Vice Chief of Naval Operations: Admiral De Witt C. Ramsey, U.S.N.; Deputy Chief of Naval Operations (Admin.): Vice Admiral John L. McCrea, U.S.N.; Deputy CNO (Air): Vice Admiral Donald B. Duncan, U.S.N.; Deputy CNO (Logistics): Vice Admiral Robert B. Carmey, U.S.N.; Deputy CNO (Operations): Vice Admiral Forrest P. Sherman, U.S.N.; Deputy CNO (Personnel): Vice Admiral William M. Fechteler, U.S.N.; Judge Advocate General: Rear Admiral Oswald S. Colclough, U.S.N.; Chief, Bureau of Naval Personnel: Rear Admiral T. L. Sprague, U.S.N.; Chief, Bureau of Ships: Vice Admiral Earle W. Mills, U.S.N.; Chief, Bureau of Ordnance: Rear Admiral Albert G. Noble, U.S.N.; Chief, Bureau of Aeronautics: Rear Admiral Alfred M. Pride, U.S.N.; Chief, Bureau of Supplies and Accounts: Rear Admiral Walter A. Buck, U.S.N.; Chief, Bureau of Yards and Docks: Rear Admiral John J. Manning, U.S.N.; Chief, Bureau of Medicine & Surgery: Rear Admiral Clifford A. Swanson, U.S.N.; Commander, Pacific Fleet: Admiral Louis E. Denfeld, U.S.N.; Commander, Naval Forces Western Pacific: Admiral Charles M. Cooke, Jr., U.S.N.; Commander, Atlantic Fleet: Admiral W. H. P. Blandy, U.S.N.; Commander, Naval Forces, Eastern Atlantic & Med.: Admiral R. L. Conolly, U.S.N.; Commandant, Marine Corps: General Alexander A. Vandegrift, USMC (relieved Jan. 1, 1948 by Major General Clifton B. Cates.)

Overall command of the Naval Operating Forces devolves on the Chief of Naval Operations subject to the supreme authority vested in the President of the United States by the Constitution, and in the Secretary of the Navy by law. The Chief of Naval Operations is the principal Naval Adviser to the President and the Secretary of the Navy. In this connection, it is to be noted that in the discharge of his duties as the principal Naval Executive, the Chief of Naval Operations is responsible for executing the directives of the Joint Chiefs of Staff in so far as they affect the Navy; and under the Unified Command Plan, the Chief of Naval Operations is the executive agent for Joint Chiefs of Staff for the Pacific Area as is the Chief of Staff, U. S. Army for the Far East and Alaskan Areas.

OPERATION FORCES

The Operating Forces of the Navy are organized for administration into two principal fleets—the Atlantic and Pacific, each under a Commander-in Chief. Tactical and area commands are maintained in accordance with current deployment and assignment of tasks.

The Atlantic Fleet provides units for support of the United States occupation forces in Europe and for the support of the United States policy in the Atlantic with appropriate deployments in the Eastern Atlantic and Mediterranean. The Pacific Fleet provides units for the support of the United States occupation forces in Japan and Korea and for the support of United States policy in the Pacific. Units assigned duty on foreign stations are rotated at approximate six month intervals in order to maintain morale without moving large numbers of dependents overseas and in order to maintain thorough and uniform standards of personnel and ship training without the expensive establishment of training services at many scattered locations. Visits are made by naval forces to the areas in which the United States has important interests and to foreign ports as required for reasons of policy.

The Atlantic and the Pacific Fleets each contain in being a carrier striking force, an amphibious force, a fleet marine force, a submarine force, and units required for naval reconnaissance and anti-submarine warfare. Each fleet carries on: (a) Active duty training of naval reservists; (b) amphibious training of Marine and Army troops; (c) effective adaptation to fleet use of the latest weapons and techniques, both in offense and defense; and (d) operations to improve efficiency of personnel and effectiveness of material under extreme climatic conditions.

SHIPS OF THE U. S. NAVY

Estimated total tonnage, Atlantic Fleet	1,305,590 tons
Estimated total tonnage, Pacific Fleet	1,352,602 tons
Estimated total tonnage, Atlantic Reserve	2,465,481 tons
Estimated total tonnage, Pacific Reserve	2,306,368 tons
Value of ships of the two Reserve Fleets	$12,000,000,000
Estimated cost of inactivating ships	$38,000,000
Annual maintenance costs	$6,000,000

ATLANTIC FLEET TACTICAL EXERCISES

Large scale battle exercises were held by the Atlantic Second Task Fleet in the Caribbean and Central Atlantic during the period Feb. 3-March 18, 1947. Because of the large number of new recruits, this extensive training exercise was considered essential to the battle efficiency of the Fleet, and 133 ships were assigned to the operation. The exercises were under the command of Admiral W. H. P. Blandy, U.S.N., and Vice Admiral A. W. Radford, U.S.N.

EXERCISE SEMINOLE

A joint Army-Navy-Air Force training operation, involving an amphibious assault on a Florida Gulf beach, was carried out during the first week of November. More than a score of ships of the Amphibious Force, U. S. Atlantic Fleet, made up the Naval components which were under the command of Rear Admiral R. O. Davis.

OPERATION CAMID II

Midshipmen of the U. S. Naval Academy and Cadets of the U. S. Military Academy participated in a series of amphibious warfare training exercises in the Chesapeake Capes area during the period Aug. 12

through Aug. 23. The operation was complete with live gunfire and Air Force and Marine Corps air bombardment.

The year 1947 was important in training in the Navy with amphibious and Fleet exercises in the Pacific. Bikini was visited by a Scientific Resurvey which made exhaustive examination of the atoll, its lagoon, and the sunken ships resting there in an attempt to answer important scientific questions. Another feature of the year was a resumption of the Midshipmen Cruise to Europe and the carrying out of numerous Reserve training cruises.

NAVAL RESEARCH

The Office of Naval Research has initiated 648 fundamental research projects that reach out into every field of basic science. Many of the country's outstanding scientific authorities are at work on this program. Included are mathematics, physics, nuclear physics, chemistry, metallurgy, electronics, fluid mechanics, geophysics, microbiology, physiology, biochemistry, humanecology, biophysics, psychology, and psycho-physiology.

Although actual research under this program has been underway only a little more than two years, important advances in science have already been made. While improved and new weapons may evolve from these scientific advances, more important results are the additions to the fund of basic scientific knowledge and the corresponding ultimate benefits to man in every walk of life.

During the year, Navy cameras were carried 100 miles above the earth aboard a V-2 rocket at White Sands, New Mexico, in collaboration with the Army, to take the first pictures in existence of the solar spectrum in the far ultra-violet, and to record what the earth looks like from heights never before reached by a camera.

Navy-equipped B-29's were fitted out as scientific laboratories to take scientists high above the clouds to search for new knowledge; the most powerful atom-smashers known, cosmic rays, have thus been photographed. This information is expected to be helpful in the instrumentation and use of man-made atom-smashers, such as the synchrotron.

In the field of metallurgy, new materials are being devised. New chromium base alloys are being developed that show promise of withstanding temperatures as high as 1600 degrees Fahrenheit, far above the pre-war operating temperature of heat engine. These materials will be valuable in the operation of jet-propelled planes as well as to industry for such items as power plants and gas turbine locomotives. The use of radioactive isotopes is making a far-reaching contribution to the field of metallurgy.

New eight-inch turret guns, adapting rapid automatic features to large guns, have been developed. The principle of automatic fire also has been applied to a six-inch dual-purpose gun, and a new three-inch, 50-caliber anti-aircraft weapon.

Newer aircraft fire-control systems to give further improved gunnery and bombing accuracy also are under development. Guns and mounts are still being redesigned and improved to give faster and more accurate hitting power. New rockets are being designed to have greatly increased velocity, more effective heads, and improved accuracy in flight. Other research and development projects pursued during 1947 include guided missiles, improved torpedoes, improved mines and other anti-submarine weapons, ammunition, and ammunition details.

NAVY ANTARCTIC EXPEDITIONS

In early 1947 the Navy sent a 13-ship, 4,000-men expedition under the leadership of Rear Admiral Richard E. Byrd to the Antarctic regions. This expedition, which departed from the United States in late 1946, was officially designated as Operation Highjump. The missions of Operation Highjump were to chart Antarctica, to make scientific research, and to test the functioning of naval equipment and personnel in the rigorous Antarctic conditions.

Approximately 50 scientists representing many activities participated in the expedition. The following agencies were represented: Army, Army Air Force, Weather Bureau, Coast and Geodetic Survey, Coast Guard, United States Geological Survey, Hydrographic Office, Woods Hole Oceanographic Institute, and Fish and Wildlife Service. About 1,700,000 square miles of Antarctica were investigated. Of this, nearly 1,500 miles of new coastline were charted.

In late 1947 the Navy despatched another expedition to the South Polar regions. This time it consisted of two ice breakers only. The mission of this group is to further the research started by the large Byrd expedition.

For detailed information on Operation Highjump see: "Our Navy Explores Antarctica" by Rear Admiral R. E. Byrd (Oct. 1947, *National Geographic Magazine*); "Antarctic Fairyland," by T. R. Henry (May 10, 1947, *Saturday Evening Post*); "Antarctic Oasis" (September 1947); Dead Men's Diary," by Owen McCarty (May 17, 1947, *Saturday Evening Post*); "Report from Antarctica," by T. Henry (June 1947, *Popular Mechanics*); and "Who Owns Antarctica," by W. J. Lederer and S. V. Jones (Dec. 13, 1947, *Saturday Evening Post*).

NAVAL AVIATION

Two new aircraft carriers were commissioned during 1947—the *Coral Sea* and the *Wright*, the former of the *Midway-F. D. Roosevelt* class. Two war-tested veterans, the *Randolph* and the *Shangri-La*, were retired to the inactive fleet. The *Oriskany* is under construction in New York.

Carrier activity included the V-2 bomb launching from the *Midway*, the first long-range bombardment rocket to be fired from a moving platform. The first conventional type transport planes to be flown from a carrier took off with JATO (Jet Assisted Take-Off) from the Philippine Sea down in the Antarctic and landed on skis on the snow "runways" of Little America.

The biggest 1947 news in blimps was the transfer of all lighter-than-air from the western to the eastern seaboard. Six blimps bucked headwinds, storms, hot air over the deserts, and hurricanes on the trip from Santa Ana, California, to Weeksville, North Carolina, and Lakehurst. The fastest trip took 50.3 hours. During the year, blimps participated in exercises against submarines with both Atlantic and Pacific fleet units. A new type airship, embracing a streamlined undercarriage partially "buried" inside the bag, is being studied for future construction.

Throughout the year, the Naval Air Transport Service flew 40,000,000 passenger miles per month without a single passenger fatality. Peak transport operation occurred in July when 2,067,557 miles were flown and 9,451,448 ton-miles lifted. In the previous month, as a sideline, NATS (Naval Air Transport Service) ferry pilots flew 1,000 planes to other parts of the country.

SAFETY RECORD

A large part of the credit for the safety record of NATS goes to its continuous use of Ground Control Approach, generally spoken of as GCA. All pilots are ordered to practice a GCA simulated instrument approach at every landing where equipment is available. An additional safety measure employed is radar obstacle warning equipment which permits pilots to "see" storms or more solid obstacles under poor visibility conditions.

During the cholera epidemic in Egypt, NATS flew five tons of serum and medical supplies into the stricken area within 24 hours after the Egyptian Government requested help from the United States.

STUDY OF JET PROPULSION MAINTENANCE

The advent of jet propulsion has presented the Navy with an additional maintenance problem. To augment its technical training schools, key personnel have been assigned to civilian industrial plants to study jet engines. Outstanding in the new maintenance techniques which came to the fore during the year was atomic hydrogen and inert gas welding.

FLIGHT STUDENT TRAINING

During the first nine months of 1947, a total of 1,208 flight students completed the training course and 272 officers and 11,425 enlisted personnel graduated from technical training schools. Pensacola, as prior to the war, became the hub of pilot training, absorbing pre-flight training formerly given elsewhere. At the close of the year, 1,000 midshipmen were under instruction at Pensacola, plus 450 officers, 50 enlisted men, 60 Marines, and 50 foreign pilots. Technical training facilities for enlisted personnel were consolidated at Memphis with the transfer of 15 schools from other locations.

The Navy maintains a force of approximately 8,000 aircraft in operation, including fleet, training, and Reserve. To support these operating aircraft, about 7,000 more aircraft are in storage, pool, or overhaul activities. Long term preservation of aircraft or "canning" of planes is getting underway with the construction of steel containers to house and protect non-operating aircraft.

PROGRESS IN AEROLOGY

Important achievements in the science of aerology were recorded with the development of radiophoto and facsimile transmission of weather maps. Pictures of the weather from China's coast to Washington are now available over a radiophoto network tying in long-range transmitters at strategic stations across the nation and the Pacific. Maps can be ready 20 minutes after they are delivered for radio transmission.

Progress was made in instrumentation for gathering upper atmosphere data—50,000 feet and up, and 2,000 gram balloons were produced which can attain 100,000 feet and carry meteorological instruments to that height. Numerous air stations were equipped with photoelectric ceilometers which automatically measure and continuously record the height of cloud ceiling over an airfield with absolute accuracy.

From the public's viewpoint, one of the prize aerology projects of the year was *Project Cirrus,* rain making by sowing particles of dry ice in supercooled cirrus clouds. The project is a joint one with General Electric and the Air Forces.

Navy weather squadrons cooperated with other services in tracking a severe Florida hurricane during September. Reconnaissance planes spotted it and made regular flights into the eye of the storm, gathering data which assisted in warning residents to evacuate threatened areas. At night, radar equipped planes followed the storm when weather recco planes were not able to operate effectively. These flights kept the hurricane pin-pointed as it moved and gathered reliable data.

Naval Aviation participated in three expeditions during 1947—the Antarctic exploration of Operation High Jump, the Bikini Scientific Resurvey, and an Arctic weather project. Transport planes, helicopters, and patrol planes flew over more than 340,000 square miles of icebound territory never before seen by man, plus 75,000 square miles of ocean. Navy photographers recorded topographical features of the vast sub-continent on 64 flights. For the first time, the nature of the rock under the ice cap was revealed by the airborne magnetometer, the weapon used to detect submerged enemy submarines during the war.

PHYSIOLOGICAL PROBLEMS

Tremendous speed at heretofore unexplored altitudes, accelerated takeoffs, and rapid climb have placed scores of physiological problems in the lap of aviation medicine. A two-year plan was formulated to parallel anticipated engineering developments. New instruments of research were developed and installed, including a deceleration tower that will aid the Naval Medical Research Institute in developing protection against high speed crashes. A human catapult that will test human tolerance to accelerated takeoffs and arrested landings is nearing completion, and work was begun on a human centrifuge, the largest in the world, capable of duplicating typical normal and emergency flight patterns.

Sixteen reports on new discoveries as to why aviators frequently become disoriented and sometimes crash as a result were made at the Pensacola School of Aviation Medicine and Research. The school has also followed the leads gained in Project Everest when four men lived in a low pressure chamber at simulated high altitude for 30 days.

The Research Institute and the Aero Medical Equipment Laboratory worked together on a biological study of jet engine noise and vibration. Studies were also made in ways to bail out from a plane in flight with pilots in full flight clothing, simulating bail-outs into nets, to work out the most satisfactory methods of exiting from a cockpit without injury.

The Navy's training program for Air Reservists successfully survived its shakedown period early in the year, and in June, top month of the year, 122,075.3 pilot hours were logged as compared with 18,223.6 in the previous September, the best month in 1946.

SPEED RECORD

One of the highlights of the aviation year was the breaking of the world's speed record by Commander Turner Caldwell, U.S.N., and Major Marion Carl, USMC. Their plane, the *Skystreak* (Douglas D-558 trans-sonic research plane), reached a top speed of 650.6 miles per hour.

BUREAU OF SUPPLIES AND ACCOUNTS

Reductions in personnel and facilities and a readjustment of procedures and workload to supply a peacetime Navy characterized the fiscal year of 1947. A policy of centralized management and decentralized operation was put into effect to take advantage of wartime lessons and experience.

The Navy participated in the program to store strategic and critical

AVIATION RECORDS SET BY THE U. S. NAVY

(Oct. 1946–Aug. 1947)

Type Record	The Record	Date	Place	Type Aircraft	Pilot
World's long distance non-stop flight	11,236 miles in 55 hrs., 17 minutes	Oct. 1, 1946	From Perth, Australia to Columbus, Ohio	*Truculent Turtle*, a P2V Lockheed Neptune, Navy Patrol Plane	Thomas Davies Comdr. USN and crew
National Altitude Record from a standing start to 10,000 feet	1 min., 34 seconds	Nov. 20, 1946	Cleveland, Ohio	*Bearcat* F8F Grumman Navy Fighter Plane	N. W. Davenport Lieut. Comdr., USN
World's speed record	640.7 mph.	Aug. 25, 1947	Muroc Air Station, California	*Skystreak* D-558 Douglas Trans-sonic research plane	Turner Caldwell Commander, USN Marion Carl Major, USMC
Maximum endurance record (without refueling)	170.3 hrs. in flight	Took off Oct. 27 and landed Nov. 3, 1946	Lakehurst, New Jersey	XM-1 lighter-than-air ship	H. R. Walton Lieut., USNR and crew

materials for a National Stockpile supplying 109,200 square feet of covered space, 905,000 feet of open space. The total eventually to be supplied by the Navy is 393,676 of covered, and 8,203,400 of open space.

Navy expenditures for fiscal 1947 were $5,577,000,000; estimated expenditures for 1948 are $4,250,000,000. The total military payroll was $1,751,000,000; for civilian payroll, $1,077,000,000. In the one month of April 1947, there were 1,187,948 allotments and family allowances totaling $39,157,599.08. The Navy sold more than 4,000,000 bonds in fiscal 1947 worth $98,500,000. In the year, the Purchase Division awarded 13,105 contracts and orders representing a round figure of $250,000,000.

The problems of feeding the men of the Navy can be seen in the following statistics of food consumed in 1947: biscuits, flour, bread, 55,954,600 lbs.; meat, 110,087,860 lbs.; vegetables, 229,076,850 lbs.; fruit, 33,952,570 lbs., and eggs 10,084,310 dozens.

BUREAU OF MEDICINE AND SURGERY

By the middle of 1947, the number of hospitals operated by the Navy had dropped to 32 through the disestablishment of 13. The bed capacity on July 1, 1947 was 24,600. The hospital patient load at this time was 17,000. The wartime patient backlog has disappeared. Care for the dependents of Naval personnel was requiring an increasing service by the Medical Department.

The low death rate of 2 per 1,000 for all causes is indicative of the lowest disease rate in the history of the Navy and of the improved methods of treatment.

Research activities are located at Bethesda, Md.; Pensacola, Fla.; New London, Conn.; Camp Lejune, N. C.; Dublin, Ga.; Guam, and Cairo, Egypt. Research projects being carried on at these places include among many others: (a) prevention and treatment of diarrheal diseases and dysenteries, streptococcal diseases and rheumatic fever, and control of airborne infections; (b) in aviation medicine, physiological problems arising from high speed, high altitude aircraft, including the effects of rapid acceleration and deceleration, and ultrasonic vibration in jet-propelled aircraft, human factors in aircraft design, and the biomechanics of aviation crash injuries and protective measures; (c) in submarine medicine, physiological problems in habit-ability of submarines, especially air-conditioning, odor control, and optimum levels of oxygen and carbon dioxide, problems in vision and hearing, especially as they apply to lookouts and sonant operators; and (d) medical aspects of atomic energy.

In cooperation with the Bureau of Ships, projects and studies are being continued on decontamination methods, radiological safety, handling and disposal of radioactive material, radiation sickness and injuries, and the design of monitoring instruments.

NAVAL CONSTRUCTION AND EQUIPMENT

By John C. Niedermair
Bureau of Ships, Navy Department

GENERAL

The article on this subject in The American Year Book for the year 1946 covered, in considerable detail, various predictions regarding the future types of naval vessels which apply equally well to the year 1947. Since the Secretary of the Navy's Annual Report for 1946 was not released for publication until June 1, 1947, it is necessary to include much of the Bureau of Ships portion of that report in this review for 1947. This will place on record the only official information which was made available on naval construction during the period covered by this review.

NAVAL APPROPRIATIONS—1947 AND 1948

Congress authorized a cash outlay of $3,268,766,100 for the fiscal year 1948 (July 1947 to July, 1948). In addition, the Secretary of the Navy was given authority to contract, prior to July 1, 1948, for $248,000,000 in aircraft new construction, procurement, and equipment, including spare parts and accessories. The regular, annual, and supplemental appropriations for the fiscal year 1947 was $4,332,781,951 including rescissions. In his budget estimate for 1948, President Truman recommended an outlay of $3,513,000,000 for the Navy. The 1948 appropriation includes $320,000,000 for the Bureau of Ships maintenance expenditures; $184,000,000 for the Bureau of Ordnance, Ordnance and Ordnance stores expenditures; $9,700,000 for the construction of ships; and $4,580,000 for ordnance new construction.

POST-WAR CURTAILMENT IN SHIPBUILDING

After V-E day, and the prospective transfer of the Atlantic units to the Pacific, it was evident that a cutback in the shipbuilding and conversion program could undoubtedly be entertained, and the major activity of the Bureau of Ships during the fiscal year 1946 was in connection with the slowing up of the shipbuilding program, the ever increasing maintenance requirements of the fleet, the preparations for and de-activation of the vessels not needed to be kept in commission after V-J day, and the preparations for the Bikini atomic bomb tests.

During the fiscal year 1946 the shipbuilding program was primarily aimed at completing the approved national defense program. During 1946, only one new type of vessel appeared, namely, the *Midway* class of large carriers with the protected flight deck and armed with the new 5-inch 54-caliber long-range anti-aircraft battery. The adjoining table clearly shows how the shipbuilding and conversion program came to its peak in 1944 and was scheduled to run out at approximately July 1, 1946.

CUT-BACKS IN SHIPBUILDING PROGRAM

During July 1945, in accordance with provisions of section 202, Public Law 458 (78th Cong.) known as the War Mobilization and Reconversion Act of 1944, the Secretary of the Navy directed a study to be made of the naval shipbuilding program to ascertain what contracts, if any, could be terminated. At that time the rate of naval construction and conversion, which had reached its peak during 1944, had dropped to less than one-half of the 1944 rate, and most of the outstanding contracts were scheduled to be completed by the end of the fiscal year 1946. As a result of this study, the Secretary of the Navy on Aug. 10, 1945 directed that contracts for 56 combatant vessels, 14 auxiliaries, and 25 mine craft should be terminated. Although the cut-back based on this study was directed on Aug. 10, 1945, the cut-back was not given publicity until after V-J Day. Immediately thereafter, a further review of the shipbuilding program was instituted by the Secretary of the Navy and by Aug. 18, 1945, additional terminations were ordered of 17 auxiliaries, two large landing craft, 36 PT boats, 9,600 small landing craft and boats, 101 district craft and 24 transports, cargo ships and oilers, being built for the Navy by the United States Maritime Commission.

These pre-V-J and V-J Day terminations, totaling over 9,800 vessels and craft, resulted in a reduction in future expenditures of over $1,250,000,000. To consummate these terminations, the Government had to abandon, except for salvage value, an equity of about $950,000,000 in the uncompleted vessels.

After V-J Day, reviews of the outstanding shipbuilding programs were

SHIPBUILDING PROGRAM (1941-1946)

	Deliveries, Fiscal Years					Originally Scheduled for Fiscal Year 1946	Actual Fiscal Year 1946	Fiscal Year 1945			Delivered V-J Day to Jan. 1, 1946	Delivered Jan. 1, 1946 to July 1, 1946	Building July 1, 1946
	1941	1942	1943	1944	1945			Delivered Fiscal Year 1945 Before V-J Day	Building V-J Day	Cut-Back			
Battleships	0	5	3	1	1	0	0	0	2	1	0	0	1[1]
Carriers (Essex)	0	1	4	6	7	7	5	0	9	2	1	4	2
Light Carriers	0	0	5	4	0	2	0	0	2	0	0	0	2
Heavy Carriers	0	0	0	0	0	3	2	0	3	0	2	0	1
Escort Carriers	1	4	25	69	11	17	10	1	25	16	5	4	0
Large Cruisers	0	0	0	1	1	1	0	0	0	0	0	0	1
Heavy Cruisers	0	0	2	2	6	9	5	1	21	12	2	2	5
Light Cruisers	0	5	6	10	12	8	5	0	19	10	1	4	4
Destroyers	20	31	119	115	73	86	50[1]	11	77	15	27	23[1]	12
Escort Vessels	0	0	56	399	49	16	13	6	11	2	1	6	2
Submarines	13	19	41	71	67	33	28[1]	5	33	7	9	14[1]	3
Total, Combatant	34	65	261	678	227	182	118[1]	24	202	65	48	57[1]	33[1]
Mine craft	56	176	289	313	133	48	16	4	52	39	11	1	1
Patrol craft	52	190	697	641	296	97	48	18	79	48	31	0	0
Auxiliaries	59	116	253	394	723	223	94	38	178	114	25	31	8
Landing craft	493	3,462	14,942	32,914	29,899	10,189	2,723	1,525	9,503	8,925	1,208	0	0
District craft	173	523	712	645	756	361	275	58	322	105	210	7	
Total, All Types	867	4,532	17,154	35,585	32,034	11,100	3,274	1,667	10,336	8,666	1,533	96	42

[1] Includes vessels delivered incomplete.

Note: All figures above include new construction, acquisitions, and conversion of private or U. S. Maritime Commission vessels for naval operation.

made in October and November 1945 and in January and March 1946. As a result of these reviews, which were made in collaboration with the Director of War Mobilization and Reconversion and the Congressional Naval Affairs Committee, 38 additional vessels were terminated and the construction of 17 vessels was held up. The vessels held up were accepted in an uncompleted condition and held in an "as is" condition for possible future completion.

DEMOBILIZATION OF THE FLEET

Since the end of conflict in September 1945, in the interest of national economy, it became necessary to demobilize, in large measure, the largest fleet of ships ever built. Such a program was initiated accordingly and was well under way by the end of the year.

There were 2,027 vessels of representative types assigned to the reserve Sixteenth and Nineteenth Fleets for inactivation, including 99 vessels to be disposed of by sale, scrapping, and designation as historical relics. Of those assigned, 1,529 vessels had reported and were in various stages of inactivation and 582 vessels were inactivated by June 30, 1946. The inactivation of these reserve fleets was about 40 per cent completed, with final completion of the present program anticipated about Sept. 30, 1947, except for district craft, etc., which were employed to inactivate other vessels.

Approximately 6,800 vessels were to be declared surplus to the needs of the post-war Navy, of which 3,447 vessels were declared surplus and available to disposal agencies, comprised of the Maritime Commission, War Shipping Administration, Naval Material Redistribution and Disposal Administration, and the Office of Foreign Liquidations Commissioner. Of those declared surplus, 1,697 were transferred to new owners, or scrapped, while the remainder awaited disposal instructions from appropriate disposal agencies.

SHIP MAINTENANCE AND REPAIRS

Operations in the far Pacific after the surrender of Japan resulted in severe typhoon damage to vessels in that area. This demand for maintenance and repair was followed by upkeep requirements which resulted from four years of war, during which time was not available for the accomplishment of normal maintenance. The character of maintenance overhauls changed after the surrender of Japan. During the war, overhauls were usually accomplished in connection with battle damage repairs or changes in the military characteristics of ships. Following the war, there was a period when alterations practically ceased. Maintenance and overhaul work consisted mostly of urgent repairs usually on a voyage repair basis. Near the end of the fiscal year, plans had progressed so that the active ships would then come into the shipyards for overhauls on a periodic, measured-time basis. Overhaul schedules necessarily non-existent during the war or the period immediately after the war were prepared, covering two years in the future.

Of necessity the extent of such repairs and alterations was restricted to essentials. Immediately after the surrender, the Navy was called upon to move an unprecedented number of men and equipment home. The preparation for this assignment (Magic Carpet), involved changes for personnel accommodations to all types of vessels from aircraft carriers to escort vessels. Operations Crossroads also imposed a heavy demand upon facilities in preparing various vessels for target and support forces for the Bikini tests and resultant explorations.

The material condition of the fleet and its operational reliability during four years of war was beyond expectation. The material improvement program should provide the post-war fleet with that qualitative supremacy in design, striking power, range, mobility, and equipment, without which mere numerical supremacy is meaningless.

NEW DESIGNS AND RESEARCH DEVELOPMENTS

Though limited by restrictions concomitant with the cessation of hostilities, the Bureau of Ships has pursued the research and development problems to the utmost. With the cessation of hostilities, the Bureau of Ships' design effort shifted from the prosecution of work connected with the shipbuilding program and other related wartime activities to new studies and programs brought about by war and post-war developments. Rapid progress in the field of guided missiles, submarine propulsion systems, the advent of the atomic bomb, and other scientific achievements have necessitated a re-examination of characteristics of existing types of warships and exploratory studies of entirely new types of vessels. As naval vessels are necessarily complex assemblages, they are not easily changed in fundamental design or built in a short time. Hence, during the war, most of the major ships built were from fundamental designs conceived during the period from 1933 to 1941. This was justified from a ship propulsion and resistance to damage point of view for two reasons: (1) United States designs were believed to be and generally proved to be far in advance of those of our enemies or allies; (2) maximum production was required, which precluded radical design changes. Just as the forward thinking of 1933 and construction of prototype vessels permitted us to build the greatest Navy the world has ever seen, the present period must see the development of advanced and new concepts in naval design.

NEW CONSTRUCTION AND CONVERSIONS

In 1946, the Navy suspended construction on the 45,000-ton battleship *Kentucky* and the 27,000-ton cruiser *Hawaii* pending design changes which would make them the first guided missile warships.

During 1946 and early 1947, three new heavy cruisers were launched—the *Des Moines, Salem,* and *Newport News.* Displacing 17,000-tons, they will be the "heaviest" heavy cruisers afloat. Their new rapid-firing 8-inch guns will permit a rate-of-fire several times greater than was possible in the 13,600-ton *Baltimore* class heavy cruisers which saw service during the war. During 1947, the world's "heaviest" light cruisers were also launched —the 14,700-ton *Worcester* and *Roanoke.* Mounting new dual-purpose 6-inch guns and scores of lesser anti-aircraft guns, they will provide far more effective anti-aircraft defense than their wartime predecessors, the 10,000-ton *Cleveland* class light cruisers.

Early in 1947, Congress authorized the construction of two new high-submerged speed submarines—the *Tang* and the *Trigger.* When completed in 1951, the *Tang* and *Trigger* will be the world's fastest combat submarines. Hull, contract, and machinery plans are being prepared by the Portsmouth Naval Shipyard. Other submarines are being altered to include modern developments. Other conversions also were authorized by the Congress in 1947. Nine 2100-ton *Fletcher* class destroyers will be converted into high-speed destroyer escorts. Emphasizing the growing importance of undersea warfare, these high-speed destroyers are needed to provide adequate anti-submarine defense against the new high-submerged speed submarines. In addition, two submarines will be converted into troop carriers, one submarine will become a cargo carrier, and another submarine will be converted for Arctic picket service. To provide prototypes for the study of amphibious operations in polar regions, two LSDs (Landing Ship, Dock) and one cargo ship will also be converted for polar service.

RESEARCH

Since V-J Day, the Navy has been supporting an extensive fundamental research program which already is paying dividends in important new scientific discoveries of benefit to both the civilian economy and the armed services. Three months before the atom bomb fell on Hiroshima, Secretary of the Navy James Forrestal established the Office of Research and Inventions (now the Office of Naval Research) to "keep the nation scientifically prepared." The Office of Naval Research already has initiated over 600 fundamental research projects that reach out into every field of basic science, and many of the country's outstanding scientific authorities work on this program.

Projects are under way in every field of science including mathematics, physics, nuclear physics, chemistry, metallurgy, electronics, fluid mechanics, geophysics, bacteriology, physiology, biochemistry, environmental biology, biophysics, psychology, and psycho-physiology. Although actual research under this program has been under way only a little more than one year, important advances in science have already been made. While improved and new weapons may evolve from these scientific advances, more important results are the additions to the fund of basic scitific knowledge and the corresponding ultimate benefits to man in every walk of life.

Navy-equipped Army B-29s also have been fitted out as scientific laboratories to take scientists high above the clouds to search for new knowledge. The most powerful atom-smashers known, cosmic rays, have thus been photographed and have yielded information which has been helpful in the instrumentation and use of man-made atom-smashers, such as the synchrotron.

In the field of metallurgy, new materials are being devised. New chromium base alloys are being developed that show promise of withstanding temperatures as high as 1,600 degrees Fahrenheit far above the pre-war operating temperature of heat engines. These materials will be invaluable in the operation of jet-propelled planes but will also have many benefits to industry and to the public such as improved engine performance, new power plants, and gas turbine locomotives.

ORDNANCE

While new weapons are being studied and developed on a long-range program and present weapons are being improved or modified on a short-range plan, the Navy's Bureau of Ordnance has stored up a vast supply of the best weapons with which the Second World War was won and has these available should a new emergency arise. This war reserve, amassed through a careful appraisal of weapons and ammunitions, already has resulted in the storage of approximately $1,750,000,000 worth of ordnance equipment as a form of national defense insurance.

New eight-inch turret guns, developed since V-J Day as part of the Bureau of Ordnance program of adapting rapid, automatic features to large guns, will fire at battle ranges approximately four times faster than any gun of the same or larger caliber. The principle of automatic fire also has been applied to a six-inch, dual-purpose gun, and a new three-inch, 50-caliber anti-aircraft weapon. The rate of fire of the new six-inch gun, the first rapid-fire anti-aircraft mount of its caliber, has exceeded by a wide margin its original design specifications. Automatic, from ammunition handling rooms to gun muzzles, the new eight-inch batteries eject cartridge cases from the mounts, powder bags having been abandoned in favor of cartridge cases to achieve the desired high rate of fire.

For the first time in any Navy, the difficult job of gun turret ammunition handler has been eliminated in the eight-inch gun once the ammunition has left the stowage level. The new design includes some ammunition handling features both American and foreign, which, although originally developed for other mounts, have been combined with entirely new features to achieve an efficiency of handling arrangements that has resulted in an unprecedented firing-rate.

NEW CARRIER COMMISSIONED

Last in a class of the Navy's three largest ships in point of sheer bulk, *USS Coral Sea* has joined American sea forces five and a half years after the battle for which she was named.

The new CVB, along with sister ships *Midway* and *Franklin D. Roosevelt,* is too large to pass through the Panama Canal. She was launched in October 1947 and will be completely outfitted by January 1948.

Two other carriers, CVE 57 and CVB 42, were first assigned the name *Coral Sea.* CVE 57 became *USS Anzio* and CVB 42 became *Franklin D. Roosevelt.*

Braced against chilly winds whipping across the massive flight deck, the 3,500 crew members were told by the Secretary of the Navy John L. Sullivan in the commissioning address that "the strength and the determination of the United States will be judged not only by this fine ship with its remarkable equipment, but even more by the way you handle it, and by you yourselves."

It is entirely fitting that the name of the famous battle be assigned to a carrier since the Battle of the Coral Sea was the first major naval engagement in history in which surface vessels did not exchange gunfire. Losses on both sides resulted from aircraft attacks.

The *Coral Sea* is 968 feet long, with a beam of 113 feet at the waterline. She is rated at more than 33 knots and has an armament of 18 5-inch 54s, 84 40-mm, and 28 20-mm.

THE STEAM-PROPELLED LST

The Navy's new LST 1153, featuring steam propulsion which provides several more knots in speed over wartime LSTs, was commissioned at the Naval Shipyard in Boston, Mass.

In addition to incorporating a turbine drive, the new vessel features many improvements over the landing craft which saw extensive service in the Second World War. LST 1153 measures 382 feet in length, 55 feet longer than previous craft. Two 5-inch 38-caliber guns give the vessel heavier fire power. Crew and troop quarters are larger, and tank, truck, and cargo capacities are increased. On deck, heavier types of vehicles developed since the war may be carried. A more shallow draft at the bow will permit beaching more easily, and cargo booms are installed to aid in unloading cargo. The vessel carries four small landing craft. The ship's complement consists of 82 officers and enlisted men.

SALE OF COMBATANT VESSELS

Some 400 combatant vessels, many showing marks of war and old age, were auctioned off in the virtually completed Navy disposal program. Having been determined surplus to future needs of the Navy's active and reserve fleets, 55 vessels were sold for use by the buyers and the remainder for scrap. Thirty-one CVEs were sold for use, along with 10 DEs and 14 frigates, after buyers had been carefully scrutinized to insure that the vessels actually would be converted to cargo ships.

Buyers were required to remove flight decks from the carriers and, except in notable instances when the Navy made sure the guns could never be fired, all armament and other military features were stripped from the vessels.

The carriers, mostly with C-3 hulls, could be converted to cargo vessels easily. The program is a boon to American shipyards, whose personnel might otherwise find considerably less work in these times.

The vessels which are being broken up for scrap by private shipbreaking companies will assist in relieving the critical scrap shortage. A total of almost 600,000 tons will be realized from the Navy combatant vessels.

The highest price received for any single vessel was $380,000 for the *New Mexico.* Old four-stackers, on the other hand, went for as low as $8,000 to $10,000.

Other battleships sold were the *Oklahoma,* which sank while being towed to the United States from Pearl Harbor, and the *Idaho* and

Wyoming. Five light cruisers of the *Omaha* class were put on the auction block—*Trenton, Concord, Richmond, Detroit,* and *Memphis.*

Two veterans of the attack on Pearl Harbor, *Cassin* and *Downes,* were sold as scrap along with 122 other destroyers. Among the 50 aircraft carriers, 36 of which had seen service in the British Navy under Lend-Lease, was the old warrior *Ranger.* Others sold were 111 DEs, 59 submarines, six eagles, and 60 frigates.

Large numbers of landing craft, not considered as combatant vessels, were turned over to the Maritime Commission for disposal.

V-2 ROCKETS LAUNCHED FROM MIDWAY

Not long ago, the world had a look into the future when the U. S. Navy launched a captured German V-2 rocket from the aircraft carrier *USS Midway.* This was the first time in history that a large bombardment rocket had been fired from either a ship or a moving platform. Although the 45-foot, 14-ton missile exploded after traveling only six miles, Navy officials hailed the experiment as successful. The primary purpose of the experiment was to ascertain if large bombardment rockets could be fired from modern aircraft carriers without requiring modifications that would affect flight operations. The modifications made on the *Midway* for the rocket-launching platform had no effect on flight operations.

Previous firing of V-2 rockets had been made by the Army at the White Sands proving grounds in New Mexico. The average distance of vertical flights made by V-2s in New Mexico was 85 miles, while the established record is 114 miles.

This gives a clear outlook on the position Navy ships will play in future wars. With the present maximum gun range of about 20 miles, Navy ships making shore bombardments are easy targets for long-range shore batteries. However, with the aid of rockets, the firing range of ships can easily be increased to almost 200 miles, placing every coastline in the world within easy range of destructive rocket weapons.

Presently the Navy is planning to have two guided-missile ships. The battleship *Kentucky* and the cruiser *Hawaii* are being constructed for such purposes. It is anticipated that more V-2 rockets will be fired before such launching platforms will definitely be installed in the *Kentucky* and *Hawaii.*

"This launching," said Rear Admiral D. V. Gallery, USN, Assistant Chief of Naval Operations for Guided Missiles, who witnessed the firing of the V-2 rocket from *USS Midway,* "will mark the beginning of a new era in naval weapons."

Elaborating on the future possibilities of rocket-carrying Navy ships, Vice Admiral Forrest P. Sherman, USN, Deputy Chief of Naval Operations, commented that such ships would lend great support to land military operations by extending the range of ship bombardment many miles inland.

SAVINGS BY COMMON USE OF FACILITIES

Savings amounting to more than $1,000,000 per year by the common use of Army-Navy-Air Force facilities were cited as possible in a report prepared by Vice Admiral Robert B. Carney, USN, Deputy Chief of Naval Operations for Logistics. Some of the economy measures listed in Vice Admiral Carney's report are: Recommended that shipyard repair and conversion work of War Department be done, as it has in the past, on a case basis. Recommended that Navy undertake the Army inspection work on two transport conversion jobs awarded Newport News Shipbuilding and Drydock Co.; and Navy to handle all Army overseas explosive shipments on the West Coast, saving $38,000 monthly; Joint Army-Navy weather bureau network for weather dissemination partially activated, all plans made to permit operation of 56 Navy stations, and a saving of $500,000 yearly expected when completely activated; Navy installation of necessary equipment for integration of continental naval air stations into the AAF military flight service communication system, an eventual saving of over $250,000 per year being expected upon completion of this project.

WATERWAYS, HARBORS, AND FLOOD CONTROL

By Raymond A. Wheeler
Lieutenant General, U. S. A.; Chief of Engineers, Department of the Army

RIVER AND HARBOR IMPROVEMENTS

Federal improvement and maintenance of rivers and harbors and other waterway channels of the United States and its territories and island possessions have been prosecuted for some 125 years under the direction of the Secretary of the Army and supervision of the Chief of Engineers, in accordance with the authorizations of Congress. During the fiscal year, which ended June 30, 1947, improvement operations were carried out on 91 regular river and harbor projects, of which four were completed. Maintenance operations were performed on 291 projects, including the numerous coastal and inland harbors, connecting channels on the Great Lakes, the extensive Intracoastal Waterway and Mississippi River network, together with the operation and care of the canalized Ohio River system, Illinois Waterway, the upper Mississippi River, and the hydroelectric power plants on the Columbia River at Bonneville, Ore., and on the Missouri River at Fort Peck, Mont. The Federal expenditures for new work and maintenance operations on navigation projects and allied operations during the fiscal year ended June 30, 1947 were $89,169,789.29.

The principal items of new work performed during the fiscal year 1947, other than on canals and inland waterways, included dredging of the westerly 600-foot strip of Ambrose Channel and the center 800 feet of Anchorage Channel in New York Harbor to a depth of 45 feet; dredging and rock removal and removal of wrecks and obstructions in New York and New Jersey Channels in Arthur Kill from above the Baltimore and Ohio Railroad bridge to Elizabethport to a depth of 37 feet was completed, and dredging and rock removal in the southerly half of the channel in Kill Van Kull from Bergen Point to Bayonne bridge to a depth of 37 feet was in progress at the end of the fiscal year. Deepening of the harbor at Lake Worth Inlet, Florida, was initiated in the 300-foot outer channel and in the inner channel to and including the turning basin. Construction of Dam B on the Neches River, Texas, was initiated on a portion of the earthen embankment. At Los Angeles and Long Beach Harbors, California, construction of the 13,350-foot detached breakwater was continued, and at Moss Landing Harbor, California, dredging of the entrance and inner channels and construction of the north and south timber jetties were completed.

In addition to the new work mentioned in the preceding paragraph, maintenance operations were performed at important river and harbor and other waterway projects previously completed along the Atlantic, Gulf, and Pacific coasts, in the interior, and on the Great Lakes. Work was also performed during the past fiscal year on 15 projects of a river and harbor nature required by the Department of the Navy and other government agencies with funds furnished by those agencies.

At Fort Peck Dam, Montana, on the Missouri River, the reservoir was operated throughout the fiscal year for the maintenance of navigation on the Missouri River, and incidental purposes of flood control and hydroelectric power production. Releases for these purposes also served the needs of water supply and stream sanitation along the Missouri River below the dam. Operation of the completed 35,000-kilowatt generating unit was continued during the major portion of the year, the total power production during the fiscal year 1947 being 204,347,000 kilowatt-hours. At Bonneville Dam, Oregon and Washington, the ten power-generating units were operated throughout the fiscal year, producing 3,711,155,000 kilowatt-hours.

INTRACOASTAL WATERWAYS

The Atlantic and the Gulf Intracoastal Waterways provide a protected channel for barge and other light-draft navigation following coastal sounds, bays, rivers, and artificial channels. This canal system, extending for some 2,500 miles along the Atlantic and Gulf coasts, affords a channel 12 feet or more in depth throughout the Atlantic coast section from Trenton, N. J., to Jacksonville, Fla., and in the Gulf coast section from Carrabelle, Fla., to Corpus Christi, Tex. During 1947, new work dredging was performed in the Gulf Intracoastal Waterway in Texas between Corpus Christi Bay and Baffin Bay.

The Cape Cod Canal, Massachusetts, extending from the head of Buzzards Bay to Cape Cod Bay, and the Chesapeake and Delaware Canal between the Delaware River and Chesapeake Bay, are sea-level waterways, affording a protected and shorter route for coastwise ocean-going vessel traffic and were maintained and operated as required.

New work bank stabilization at several sections on the Chesapeake and Delaware Canal was completed during the year.

INLAND WATERWAYS

The principal inland navigable waterways of the United States include the Mississippi River system, the New York State Barge Canal system, the San Joaquin-Sacramento River system in California, and the Columbia River system in the northwest. The Mississippi River Waterway system embraces the river proper, the Red, Arkansas, Missouri, Illinois, Ohio, Tennessee, Monongahela, Allegheny, and Kanawha rivers and other streams. The Mississippi River has a channel for ocean-going vessels to Baton Rouge, La. and thence a channel for modern barge navigation to Minneapolis, Minn. and in its principal tributaries. The Illinois River and Waterway to Lake Michigan has a barge channel which connects the Great Lakes with the Mississippi River system. The Mississippi River system, together with the Intracoastal system with which it connects at Plaquemine and New Orleans, La. brings barge navigation within reach of important industrial and farming centers.

The San Joaquin-Sacramento River system, with an outlet to the sea through San Francisco Bay, has a deep-draft channel to Stockton, Calif. on the San Joaquin River and a moderate-draft channel to Sacramento on the Sacramento River. The Columbia River affords a channel for ocean shipping to Portland, Ore., and Vancouver, Wash., and depths suitable for commercial-vessel traffic to the head of the pool formed by the Bonneville Dam, and thence depths for barge navigation upstream to and including the Snake River.

These systems of inland waterways were maintained and operated during the past fiscal year to provide for water-borne commerce and other traffic. The principal projects on which new construction was accomplished during the fiscal year included the lateral canal and lock project on the Mississippi River at Chain of Rocks, near St. Louis, Missouri. Work on this project was continued and comprised the relocation of utilities, bridge construction over the canal, and dredging the lower approach to the canal. Open-river regulating works on the Mississippi River between the Ohio and Missouri rivers consisted of 13 dikes and three revetments which were completed, and 12 dikes which were under construction at the end of the fiscal year. Construction of guide walls for the landward lock of lock and Dam No. 2 at Hastings, Minn. on the upper Mississippi River was substantially completed. On the Missouri River between the mouth and Sioux City, La., 14 dikes and 48 revetments were completed, and 10,073 linear feet of dikes, 19,627 linear feet of revetment and 3,603 linear feet of pile revetment were strengthened; in addition one dike and seven revetments were under construction at the end of the fiscal year. Channel straightening in the Illinois Waterway in the Starved Rock pool was continued. Construction was initiated during the fiscal year on the McNary Dam project on the Columbia River with excavation for the navigation lock, construction of access roads, railroad spur tracks and a siding.

GREAT LAKES

The Great Lakes (Superior, Michigan, Huron, Erie, and Ontario) have natural deep water except in the connecting channels which have been artificially deepened where necessary to accommodate deep-draft vessels. They have an outlet to the Atlantic Ocean *via* the St. Lawrence River and *via* the Oswego and Erie branches of the New York State Barge Canal system and the Hudson River.

Deepening a 250-foot wide channel in the westerly outer harbor at Oswego, N. Y. to project depths, and operations for the removal of rock shoals in the Black Rock Canal at Buffalo were in progress at the end of the fiscal year. Revetment construction at the upper entrance to Keweenaw Waterway, Michigan, was initiated during the year.

WATER-BORNE COMMERCE

The total net water-borne commerce of the United States, after eliminating all known duplications of traffic, aggregated 617,955,391 short tons in the calendar year 1946. A net total of 95,648,203 short tons was carried on the Mississippi River and its tributaries, and 175,888,343 short tons of traffic were moved on the Great Lakes.

NET TOTAL COMMERCE OF THE UNITED STATES

Year	Short Tons	Year	Short Tons
1935	453,331,000	1941	653,600,000
1936	525,842,000	1942	589,900,000
1937	583,100,000	1943	580,581,000
1938	466,900,000	1944	605,928,000
1939	569,400,000	1945	618,906,000
1940	607,900,000	1946	617,955,000

NET COMMERCE AT TEN LEADING COASTAL PORTS IN 1946

Port	Short Tons
New York	108,553,342
Philadelphia	32,779,932
Baltimore	32,195,348
Houston, Tex.	31,837,453
New Orleans	24,207,733
Beaumont, Tex.	23,052,108
Port Arthur, Tex.	20,177,288
Norfolk, Va.	16,041,678
Boston	15,008,334
Los Angeles	14,488,796

NET COMMERCE AT FIVE LEADING PORTS ON GREAT LAKES IN 1946

Port	Short Tons
Duluth-Superior	54,285,385
Toledo	30,051,026
Chicago	18,925,928
Cleveland	16,539,046
Buffalo	16,150,366

MISSISSIPPI FLOOD CONTROL

Works for improvement of the channel of the Mississippi River proper were continued during the fiscal year ended June 30, 1947 at various places below Cairo, Ill. and the levees built for flood control from Rock Island, Ill. to near Head of Passes, Louisiana, now extend from 484 miles above to 966 miles below Cairo at the confluence of the Mississippi and Ohio rivers. Below Cairo, revetment is in place over more than 100 miles of river bank, and many miles of permeable dikes are in place for bank stabilization and channel regulation. The 2,500-mile levee system was substantially completed and now contains nearly 1,200,000,000 cubic yards of earth. The contemplated Bonnet Carre spillway structure and the New Madrid Floodway have been successfully operated and are ready for future operation when required. The flood control dam on the St. Francis River and two in the

Yazoo River Basin have been completed and are in operation. Two more dams in the Yazoo Basin are under construction.

A navigable channel is available throughout the main river from Minneapolis to the Gulf of Mexico. Below Alton, Ill. the channel is maintained by open river works. In the 655 miles of river above Alton to Minneapolis, a system of low-head dams with locks provide a 9-foot channel depth adequate for modern barge navigation. The Ohio River and certain of its improved tributaries are also canalized to provide a 9-foot channel for barge navigation serving this highly industrialized region. The system of six locks and dams on the Ouachita and Black rivers provide depths of 6½ feet at low water, a distance of 351 miles, from the Red River to Camden, Ark. The Red River proper and the Arkansas River have been improved for light-draft navigation throughout a total length of more than 1,000 miles.

GENERAL FLOOD CONTROL

After having previously authorized specific projects for the alluvial valley of the Mississippi River and for the Sacramento River, California, Congress, in the Flood Control Act approved June 22, 1936, authorized the construction of flood-control projects and the investigation of flood problems on streams throughout the United States and its territorial possessions. The Federal program for general flood control was launched in 1937 when funds were first appropriated by Congress for that purpose. By the end of June 1947, 52 reservoirs and 153 local protection projects were in operation. In addition to previous authorizations, an Act of Congress, approved Aug. 4, 1947, authorized the construction of the project on the Little Sioux River in Iowa, at an estimated cost of $3,320,000. The total authorization to date provides $2,294,044,500 for the construction of approximately 761 projects dispersed throughout the United States. This amount does not include ten projects having an estimated cost of $161,675,500 which the 1946 Flood Control Act placed under the jurisdiction of the Mississippi River Commission. In the period from 1937 through July 31, 1947, Congress appropriated $1,081,494,725 for national flood control purposes, comprising $1,005,272,825 for construction and detailed planning of authorized projects and $76,221,900 for maintenance of completed projects, conducting surveys, and miscellaneous activities.

Taken collectively, all of the authorized projects constitute a plan, comprehensive and coordinated, for developing the nation's streams. The plan provides economical flood protection and allied benefits for centers of industry and population; millions of acres of rich, agricultural land; and vital lines of communication. In addition to their use for flood control, many of the reservoirs provide for multiple-purpose utilization such as hydroelectric power generation, stream-flow regulation, water conservation, recreation, and other water uses.

A number of projects were completed during the year. Pertinent data in regard to all of the projects completed or placed in operation to date, under the national flood-control program, are contained in the tables on pp. 374 to 376.

These projects have already returned large benefits in the prevention of flood damages. Work was continued during the year on those projects which had been placed under construction throughout the nation. While the previously scheduled program for river and harbor and flood-control improvements was drastically curtailed by a directive from higher authority, subsequent revision of the directive permitted a resumption of certain activities, particularly in connection with contracts in force. By the end of the fiscal year, construction had been initiated on practically all the new projects for which funds had been made available. Some typical examples of projects under way include local protection works at Williamsport, Pennsylvania, and the Almond Reservoir, New York, in the

Susquehanna River Basin; the Clark Hill Reservoir on the Savannah River and the Allatoona Reservoir in the Coosa River Basin, both in Georgia; the John Martin Reservoir, Colorado, Blue Mountain Reservoir, Arkansas, and the Canton Reservoir, Oklahoma, all in the Arkansas River Basin; the Clearwater Reservoir, Missouri, in the White River Basin; the Kanopolis Reservoir, Kansas, the local protection project at the Kansas Cities, Missouri and Kansas, the Garrison Reservoir, North Dakota, and the Fort Randall Reservoir, North Dakota and South Dakota, all in the Missouri River Basin; the Wolf Creek Reservoir, Kentucky, and the Cincinnati, Ohio, local protection project, in the Ohio River Basin; the Los Angeles River Channel improvement in California; and the Lookout Point Reservoir, Oregon, in the Willamette River Basin.

The separately authorized project for the Sacramento River and its

TABLE I

RESERVOIRS IN OPERATION

Reservoir	Stream	River Basin	State
Arkport	Canisteo River	Susquehanna	New York
Atwood	Indian Fork	Ohio	Ohio
Barker	Buffalo Bayou	Buffalo Bayou	Texas
Beach City	Sugar Creek	Ohio	Ohio
Berlin	Mahoning River	Ohio	Pennsylvania
Birch Hill	Millers River	Connecticut	Massachusetts
Blackwater	Blackwater River	Merrimack	New Hampshire
Blue Mountain	Petit Jean River	Arkansas	Arkansas
Bolivar	Sandy Creek	Ohio	Ohio
Brea	Brea Creek	Santa Ana	California
Charles Mill	Black Fork	Ohio	Ohio
Clendening	Brushy Fork	Ohio	Ohio
Conchas	South Canadian River	Arkansas	New Mexico
Cottage Grove	Coast Fork	Columbia	Oregon
Crooked Creek	Crooked Creek	Ohio	Pennsylvania
Dale Hollow	Obey River	Ohio	Tennessee and Kentucky
Denison	Red River	Red	Texas and Oklahoma
Dover	Tuscarawas River	Ohio	Ohio
Fern Ridge	Long Tom River	Columbia	Oregon
Fort Supply	Wolf Creek	Arkansas	Oklahoma
Franklin Falls	Pemigewasset River	Merrimack	New Hampshire
Fullerton	East Fullerton Creek	Santa Ana	California
Great Salt Plains	Salt Fork	Arkansas	Oklahoma
Hansen	Tujunga Wash	Los Angeles	California
Indian Rock	Codorus Creek	Susquehanna	Pennsylvania
John Martin	Arkansas River	Arkansas	Colorado
Knightsville	Westfield River	Connecticut	Massachusetts
Lac Qui Parle	Minnesota	Upper Mississippi	Minnesota
Lake Traverse	Bois De Sioux River	Upper Mississippi	South Dakota and Minnesota
Leesville	McGuire Creek	Ohio	Ohio
Loyalhanna	Loyalhanna Creek	Ohio	Pennsylvania
Lugert-Altus	North Fork	Red	Oklahoma
Mahoning Creek	Mahoning Creek	Ohio	Pennsylvania
Mill Creek	Mill Creek	Columbia	Washington
Mohawk	Walhonding River	Ohio	Ohio
Mohicanville	Lake Fork	Ohio	Ohio
Mosquito Creek	Mosquito Creek	Ohio	Ohio
Mud Mountain	White River	Puyallup	Washington
Nimrod	Fourche La Fave River	Arkansas	Arkansas
Norfork	North Fork River	White	Arkansas
Piedmont	Stillwater Creek	Ohio	Ohio
Pleasant Hill	Clear Fork	Ohio	Ohio
Prado	Santa Ana	Santa Ana	California
Senecaville	Seneca Fork	Ohio	Ohio
Sepulveda	Los Angeles River	Los Angeles	California
Surry Mountain	Ashuelot River	Connecticut	New Hampshire
Tappan	Little Stillwater Creek	Ohio	Ohio
Tionesta	Tionesta Creek	Ohio	Pennsylvania
Wallace Lake	Bayou Pierre	Red	Louisiana
Whitney Point	Otselic River	Susquehanna	New York
Wills Creek	Wills Creek	Ohio	Ohio
Youghiogheny	Youghiogheny River	Ohio	Pennsylvania

TABLE II

LOCAL PROTECTION PROJECTS IN OPERATION—LEVEES, FLOODWALLS, DIVERSIONS, AND CHANNEL IMPROVEMENTS

Alhambra Wash, Los Angeles, California
Augusta, Savannah River, Georgia
Avoca, Susquehanna River Basin, New York
Ballona Creek Channel and Jetties, California
Banner Special Drainage and Levee District, Illinois
Bayou Des Glaises Diversion Channel, Louisiana
Bayou Pierre, Bayou Wincey to Grand Ecore, Louisiana
Beaver Drainage District, Columbia County, Oregon
Belle Fourche, Cheyenne River, South Dakota
Big Black River, Channel Improvement, Mississippi
Big Lake Drainage and Levee District, Illinois
Binghamton, Susquehanna River Basin, New York
Blind Slough Diking District, Oregon
Brevoort Levee, Wabash River, Indiana
Brookport, Ohio River Basin, Illinois
Ceredo-Kenova, Ohio River Basin, West Virginia
Clackmas River, Clackmas County, Oregon
Coeur d'Alene, Spokane River, Idaho
Colfax, Grant Parish, Louisiana
Collinsville, Little Wills Creek, Alabama
Columbia, Ouachita River, Louisiana
Compton Creek, Alameda Street to Hooper Ave. Storm Drain, California
Consolidated Diking and Improvement District No. 1, Cowlitz Co., Wash.
Corning, Susquehanna River Basin, New York
Cowlitz Co. Drainage and Improvement District No. 1, Wash.
Crane Creek Levee and Drainage District, Illinois
Deep River Area, Wahkiakum County, Washington
Deer Island Area, Columbia County, Oregon
Diking and Improvement District No. 5, Cowlitz County, Wash.
Diking District No. 2, Clatsop County, Oregon
Diking District No. 5, Clatsop County, Oregon
Diking Districts Nos. 1 and 3 (Puget Island) and Little Island, Wahkiakum Co., Wash.
Diking Improvement District No. 2, Cowlitz County, Wash.
Diking Improvement District No. 11, Cowlitz County, Wash.
Diking Improvement District No. 13, Cowlitz County, Wash.
Diking Improvement District No. 1, Pacific County, Wash.
Drainage District No. 1, Clatsop County, Oregon
East Hartford, Connecticut River Basin, Connecticut
East Liverpool Drainage and Levee District, Illinois
East Peoria Drainage and Levee District, Illinois
Evansville, Ohio River Basin, Indiana
Fabius River Drainage District, Missouri
Fairbanks, Tanana River and Chena Slough, Alaska
Farmers Levee and Drainage District, Illinois
Faulkner County, Arkansas River, Arkansas
Gill Township Levee Unit, Indiana
Glasgow, Milk River, Montana
Galconda, Ohio River Basin, Illinois
Grant Parish below Colfax, Louisiana
Gregory Drainage District, Missouri
Haines Canyon, Los Angeles, California
Harrisburg, Ohio River Basin, Illinois
Hartford, Connecticut River Basin, Connecticut
Hempstead County Levee District No. 1, Arkansas
Hennepin Levee and Drainage District, Illinois
Homochitto River, Adams and Wilkinson Counties, Mississippi
Hornell, Susquehanna River Basin, New York
Huntington, Ohio River Basin, West Virginia
Iola, Grand (Neosho) River, Kansas
Ironton, Ohio River Basin, Ohio
Jeffersonville, Clarksville, Ohio River Basin, Indiana
John Day River Area, Clatsop County, Oregon
Johnstown Channel, Pennsylvania
Karlson Island, Clatsop County, Oregon
Kingston-Edwardsville, Susquehanna River Basin, Pennsylvania
Kittanning, Ohio River Basin, Part I, Pennsylvania
Knappa Area, Clatsop County, Oregon
Lamoille River, Channel Improvement, Vermont
Lawrenceburg, Ohio River Basin, Indiana
Levee Unit No. 8, West Fork of White River, Indiana
Lewis and Clark River Area, Clatsop County, Oregon
Liverpool Drainage and Levee District, Illinois
Los Angeles Channel, Niagara St. to Stewart and Gray Rd., California
Lost Creek Drainage and Levee District, Illinois
Lowell, Merrimack River Basin, Massachusetts
Lowell Creek, Seward, Alaska
Lyford Levee, Ohio River Basin, Indiana
Lytle and Cajon Creeks, California
Magruder Drainage District, Columbia County, Oregon
Marshland Drainage District, Columbia County, Oregon
Mason and Menard Levee and Drainage District, Illinois
Meredosia Lake and Willow Creek Drainage and Levee Districts, Illinois
Middlesboro, Ohio River Basin, Kentucky
Midland Drainage District, Columbia County, Oregon
Molalla River, Clackmas County, Oregon
Mounds and Mound City, Illinois
Mount Holly, Rancocas Creek, New Jersey
Multnomah Drainage District No. 1, Oregon
Muncie, Ohio River Basin, Indiana
Near Springfield on Sangamon River, Illinois
Newark, Ohio River Basin, Ohio
Newport, White River Basin, Arkansas
Northampton, Connecticut River Basin, Massachusetts
North Little Rock, Arkansas River Basin, Arkansas
North Little Rock to Gillett, Arkansas
Oakford Special Levee and Drainage District, Illinois
Oxford, Susquehanna River Basin, New York
Paducah, Ohio River Basin, Kentucky
Painted Post, Susquehanna River Basin, New York
Pekin and La Marsh Drainage and Levee District, Illinois

TABLE II (Continued)

Pendleton, Umatilla River, Oregon
Peninsula Drainage District No. 1, Multnomah County, Oregon
Peninsula Drainage District No. 2, Multnomah County, Oregon
Penny Slough, Rock River, Illinois
Plymouth, Susquehanna River Basin, Pennsylvania
Prattville, Autauga Creek, Alabama
Rainier Drainage District, Columbia County, Oregon
Red River Parish, Red River Basin, Louisiana
Rocky Ford Drainage and Levee District, Illinois
Rome, Alabama-Coosa River Basin, Georgia
Saline Point, Red River Basin, Louisiana
Salmon River, Hyder, Alaska
Sandy Drainage District, Multnomah County, Oregon
Santiam River, Linn and Marion Counties, Oregon
Sauvie Island, Multnomah County, Oregon
Seappoose Drainage District, Columbia County, Oregon
Schuyler, Missouri River Basin, Nebraska
Seahorn Drainage and Levee District, Illinois
Skaggs Ferry, Black River Basin, Arkansas
Skamokawa Creek Area, Wahkiakum County, Washington
Sny Island Levee District, Illinois
South Beardstown and Valley Levee and Drainage District, Illinois
South Beardstown Drainage and Levee District, Illinois
South Quincy Drainage and Levee District, Illinois
South River Drainage District, Missouri
Springfield, Connecticut River Basin, Massachusetts
Spring Lake Levee and Drainage District, Illinois
Stillaguamish River, Washington
St. Maries, St. Joe River, Idaho
Sycamore Wash, Los Angeles, California
Tar River, between Tarboro and Rocky Mount, North Carolina
Tell City, Ohio River Basin, Indiana
Tenasillahe Island, Clatsop County, Oregon
Tombigbee River, Mississippi and Alabama
Tulsa and West Tulsa, Arkansas River, Oklahoma
Union Township, Upper Mississippi River Basin, Missouri
Upper Grays River Area, Wahkiakum County, Washington
Verdugo Wash, Los Angeles, California
Village Creek, White River and Mayberry Districts, Arkansas
Walluski River, Clatsop County, Oregon
Warrenton Diking District No. 1, Clatsop County, Oregon
Warrenton Diking District No. 2, Clatsop County, Oregon
Warrenton Diking District No. 3, Clatsop County, Oregon
Washington, D. C., and vicinity
Webb District Improvement Co., Columbia County, Oregon
Wellsville, Ohio River Basin, Ohio
Westland District Improvement Co., Columbia County, Oregon
Westport District, Columbia and Clatsop Counties, Oregon
West Springfield, Connecticut River Basin, Massachusetts
Wilkes-Barre—Hanover Township, Pennsylvania
Winooski River, Reservoirs, Vermont
Woodson Drainage District, Columbia County, Oregon
Youngs River Dikes, Clatsop County, Oregon

tributaries, California, will provide flood protection for cities and towns, fertile agricultural lands, and railway and highway facilities of great importance to the economy of the western United States. Work was continued on this project throughout the year, including levee construction along the tributaries of the Sacramento River.

FLOODS AND FLOOD DAMAGE

The 1947 floods were among the worst of record, particularly in the Missouri River Basin; some part of that stream being above flood stage almost continuously from late March to July. The floods would have been more severe had not cold weather in the upper Missouri Basin held the record snow cover in the mountains, and had not Fort Peck Reservoir captured large volumes of flood flows. An area of over 3,000,000 acres was inundated, resulting in direct flood damages estimated at over $100,000,000. The loss of 26 lives was reported and at least 195,000 persons were reported homeless. The Upper Mississippi River was also severely devastated. Damages were estimated at approximately $65,000,000; however, the total cost of the flood probably will never be known due to the difficulty of evaluating damages resulting from interruption of rail and highway traffic; disruption of public utilities, soil erosion, loss of wages and consequent reduction of buying power, loss of business which can not be recovered, sickness and accident directly attributable to the flood and many other intangible damages. Other floods of a less severe nature occurred throughout the country. Emergency flood-fighting, rescue work, and emergency repairs were conducted in accordance with the provisions of existing flood-control law.

PERIODICAL PUBLICATIONS

Army and Navy Journal
1701 Connecticut Ave. N.W., Washington, D. C.
Army and Navy Register
511 Eleventh Street N.W., Washington, D. C.
Army Ordnance
706 Mills Building, Washington, D. C.
Cavalry Journal
1719 K St., N.W., Washington, D. C.
Coast Artillery Journal
631 Pennsylvania Ave., N.W., Washington, D. C.
Field Artillery Journal
1218 Connecticut Ave., N.W., Washington, D. C.
Infantry Journal
1115 Seventeenth Street N.W., Washington, D. C.
Marine Corps Gazette
United States Marine Corps, Washington, D. C.
Military Engineer
808 Mills Building, Washington, D. C.
Quartermaster Review
1026 17th St. N.W., Washington, D. C.
U. S. Coast Guard Magazine
3 Church Circle, Annapolis, Md.
U. S. Navy Magazine
South and Hanover St., Pottstown, Pa.
Waterways Journal
1605 Chemical Building, St. Louis, Mo.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

SERVICE SOCIETIES

American Legion, The, National Headquarters, 777 N. Meridian St., Indianapolis, Ind.
American Remount Assn., Otis Bldg., Washington, D. C.
American Society of Naval Engineers, Navy Bldg., Constitution Ave., N.W., Washington, D. C.
Army Ordnance Assn., Mills Bldg., 17th St. and Pennsylvania Ave., Washington, D. C.
Association of Military Surgeons of the United States, Army Medical Museum, Washington, D. C.
Chemical Warfare Service, Edgewood Arsenal, Maryland.
Military Order of the Purple Heart, 607 N. Hayford Street, Lansing, Mich.
Navy League of the United States, Inc., Mills Bldg., Washington, D. C.
Quartermasters' Assn. of the United States, 1026 17th St., N.W., Washington, D. C.
Reserve Officers' Assn. of the United States, 1726 Pennsylvania Ave., N.W., Washington, D. C.
Society of American Military Engineers, 808 Mills Bldg., Washington, D. C.
Society of Naval Architects & Marine Engineers, 29 W. 39th St., New York City.
United States Cavalry Assn., 1719 K St., N.W., Washington, D. C.
United States Field Artillery Assn., 1218 Connecticut Ave., N.W., Washington, D. C.
United States Infantry Assn., 1115 17th St., N.W., Washington, D. C.
United States Naval Institute, Annapolis, Md.

PATRIOTIC AND HEREDITARY

COLONIAL DAMES OF AMERICA, 421 E. 61st St., New York City.

DAUGHTERS OF 1812, NATIONAL SOCIETY, U. S., 1461 Rhode Island Ave., N.W., Washington, D. C.

GENERAL SOCIETY OF COLONIAL WARS, P. O. Box 396, Rosemont, Pa.

GENERAL SOCIETY OF MAYFLOWER DESCENDANTS, 916 Madison Ave., Plainfield, N. J.

MILITARY ORDER OF FOREIGN WARS OF THE U. S., Sub-treasury Building, New York City.

MILITARY ORDER OF THE LOYAL LEGION OF THE U. S., 1805 Pine Street, Philadelphia, Pa.

MILITARY ORDER OF THE WORLD WAR, 1700 Eye St., N.W., Washington, D. C.

NATIONAL SECURITY LEAGUE, 45 W. 45th St., New York City.

NATIONAL SOCIETY OF COLONIAL DAMES OF AMERICA, 2715 Q St., N.W., Washington, D. C.

NATIONAL SOCIETY OF THE DAUGHTERS OF THE AMERICAN REVOLUTION, 1720 D St., N.W., Washington, D: C.

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS, National Press Building, Washington, D. C.

NATIONAL SOCIETY OF THE SONS OF THE AMERICAN REVOLUTION, 1227 16th St., N.W., Washington, D. C.

NAVAL AND MILITARY ORDER, SPANISH-AMERICAN WAR VETERANS, 184 State House, Boston, Mass.

PILGRIM SOCIETY, Pilgrim Hall, Court St., Plymouth, Mass.

SOCIETY OF THE CINCINNATI, INC., 2118 Mass. Ave., N.W., Washington, D. C.

SONS OF CONFEDERATE VETERANS, 609 Law Bldg., Richmond, Va.

SONS OF UNION VETERANS OF THE CIVIL WAR, Colonial Trust Bldg., Reading, Pa.

UNITED CONFEDERATE VETERANS, 1528 Lowerline St., New Orleans, La.

UNITED SPANISH WAR VETERANS, INC., 40 G St., N.E., Washington, D. C.

VETERANS OF FOREIGN WARS OF THE U. S., Broadway at 34th St., Kansas City, Mo.

PART FOUR

ECONOMICS AND BUSINESS

DIVISION X

BUSINESS AND FINANCE

ECONOMIC AND BUSINESS CONDITIONS

By S. S. Huebner
Professor, University of Pennsylvania

DOLLAR VALUE AND COMMODITY VOLUME IN BUSINESS

Despite great confusion occasioned by an unusual inflation spiral, 1947 presents a remarkable record of business in both commodity volume and dollar value. Nearly all of the leading business barometers show a gain over 1946, and where there were declines, the retrocession was only minor, but where gains happened to be expressed only in dollars, they must be interpreted in the light of the strong inflationary tendency of the year and the marked corresponding depreciation of the dollar as measured in terms of commodities. Thus, according to reports, gross national production approximated $235,000,000,000, compared with $204,000,000,000 in 1946; national income rose to $200,000,000,000, compared with $178,100,000,000 in 1946; while industrial production, according to the Federal Reserve Index, reached 192 in November, compared with 183 in November, 1946.

Viewing economic barometers as a whole, substantial increases occurred in most of the important lines of economic activity. New capital flotations for the first nine months of the year aggregated $2,681,000,000, compared with $1,990,000,000 for the corresponding period of 1946; while refunding issues for the first three-quarters of the year totaled only $1,267,000,000, compared with $2,635,000,000 for the same period of the previous year. Bank clearings for the nation as a whole, when compared with 1946, were greater by about 18.9 per cent, and for the nation, exclusive of New York City, by about 19.2 per cent. The steel industry operated during 1947 on an annual basis of about 85,000,000 ingot tons, compared with 74,000,000 tons in 1946. Oil production is estimated to reach 1,850,000,000 barrels (compared with 1,733,000,000 for 1946); electric output to 305,000,000,000 kwh. (compared with 270,000,000,000 for 1946); and bituminous coal production to 563,000,000 tons for the first 11 months of the year, an increase of 15.3 per cent over the same period of 1946. Railway freight traffic was reported at the end of 1947 to have reached 647,358,000,000 ton miles, compared with 591,954,000,000 in 1946. Construction work also reached a new peak in dollars, although somewhat less than for 1946 in physical volume, while new capital for construction purposes was 13 per cent above 1946. Exports for the first nine months of 1947 (latest available) totaled nearly $11,000,000,000, compared with $7,000,-

000,000 for the same period of 1946, while for imports the corresponding totals were $4,000,000,000 and $3,500,000,000. In the automotive industry tremendous improvement occurred, the year's output being estimated at 2,500,000 passenger cars and 900,000 trucks and buses, the highest civilian year in the industry's history with the exceptions of 1929 and 1937. For the first nine months, corporate dividends on common stock issues listed on the New York Stock Exchange exceeded those for the corresponding period of 1946 by 21.5 per cent. Retail sales for 1947 are estimated to reach $110,000,000,000, compared to $97,000,000,000 in 1946, although the unit volume is estimated to run about 10 per cent below 1946.

The only noteworthy barometric exceptions showing decreases for 1947 when compared with 1946 were "crop production," "business failures," and the "security market," but all these declines were relatively small. Owing to the corn crop failure, total crop production is estimated to be 5 per cent smaller than the record harvest of 1946, but only 1 per cent under the last five year average. From a monetary point of view, owing to the large rise in farm prices, the farmer has been in a most favored position. Farm income for 1947 is estimated to total about $18,000,000,000 as compared with $15,500,000,000 in 1946. Business failures for the first nine months of 1947, when compared with the same period for 1946, increased in number from 952 to 2,510, and in the liabilities involved from $29,500,000 to $158,000,000. These increases seem large but are not very significant, partly because comparison is made with the insignificant totals of 1946, and partly because even the larger figures for 1947 are still far removed from the much larger totals of prewar years.

STOCKS AND BONDS

Of all leading economic barometers, the 1947 stock market presents the most dismal picture. Here total transactions for the year amounted to only 254,000,000 shares on the New York Stock Exchange, compared with 364,000,000 shares during 1946, while on the New York Curb Exchange the 1947 and 1946 transactions totaled respectively 72,000,000 and 137,000,000 shares. Moreover, the market was fairly steady throughout the year, at a low price level, and with only a slightly bullish tendency. Comparing the December averages for 1946 with the October averages for 1947 (Standard and Poor's Index, latest available), the railroad group of stocks averaged 48.4 for December, 1946, as compared with 42.5 for October, 1947; for the industrial group, the respective averages were 145.3 and 151.4; for the public utility group, 79.5 and 74.5; for the copper group, 123.8 and 115.6; and for a combined average of the railroad, industrial and public utility groups, 120.2 and 122.7. The bond market likewise was much more inactive during 1947 than in 1946, and prices showed a drooping tendency. Apparently the violent bear market of 1946 had substantially discounted unfavorable post-war problems. Apparently also the bear market of 1946 had spent its force, while the 1947 security market could do little more than maintain its position at the bottom level reached in 1946.

AGRICULTURE

For 1947, total crop production was estimated to be 5 per cent less than the 1946 record-large harvest, but, compared with the average output during the five-year period 1942-1946, in all of which time harvests were unusually large, total crop production during 1947 was only 1 per cent below the average.

Considerable variation in various crops seemed to prevail. As contrasted with the cotton crop failure of 1946, the 1947 yield of 11,500,000 bales compares with 8,600,000 bales for 1946, or a gain of 33.7 per cent. The wheat crop of 1,407,000,000 bushels also compares favorably with 1,156,000,000 bushels for 1946, a gain of 21.7 per cent. Moreover, compared with 1946, the 1947 yield shows crop gains as follows: flaxseed 73.9 per cent, rye 35.8 per cent, barley 8 per cent, rice 7.7 per cent, beans 6.3 per cent, peanuts 4.4 per cent, and buckwheat 4.2 per cent.

Certain major crops showed losses during 1947, and unfortunately large losses in the three major crops of potatoes, oats, and corn. Tobacco production, as compared with 1946, showed a loss of 5.3 per cent, apples 5.8 per cent, sugarcane 8.3 per cent, and soybeans 9.8 per cent. Potatoes registered a total of only 380,000,000 bushels as compared with 476,000,000 bushels for 1946, or a decline of 20.2 per cent. Oats production totaled only 1,232,000,000 bushels as compared with 1,500,000,000 bushels in 1946, a decline of 18.4 per cent. Most unfortunate of all was the corn crop failure, the most essential crop from a national point of view. Here production was as low as 2,447,000,000 bushels, compared with 3,288,000,000 bushels for 1946, a decrease of 25.2 per cent.

Prices of leading farm products during 1947 showed very substantial increases along nearly all lines. Thus, using closing prices for agricultural commodities, quotations at the close of October, 1947 (*Guaranty Survey*, Oct. 30, 1947, and the Alexander Hamilton Institute's *Business Conditions Weekly* for Nov. 29, 1947) compare as follows with prices on the corresponding date in 1946: wheat, No. 2 red winter, Chicago, per bu., $3.06 as compared with $2.17; corn, No. 2 yellow, Chicago, per bu., $2.47 as compared with $1.90; rye, farm, per bu., $2.49 compared with $1.99; oats, May, Chicago, per bu., $1.16½ compared with $.69¾; cotton, New York, per lb., $.35⅞ as compared with $.31¼. The following additional prices may be mentioned (Alexander Hamilton Institute's *Business Conditions Weekly*, Nov. 29, 1947) by way of comparison with the same date for 1946: barley, Chicago, per bu., $1.80 as compared with $1.45; butter, New York, per lb., $.78 as compared with $.83; cheese, fresh, New York, per lb., $.45 as compared with $.49; eggs, farm, per doz., $.55¼ as compared with $.51½; flour, Minn., Pat., per cwt., $8.15 compared with $6.00; lard, Middle West, per lb., $.28¼ compared with $.31¾; cattle, live, Chicago, per cwt., $33.45 compared with $31.55; hogs, live, Chicago, per cwt., $25.36 compared with $23.21; lambs, live, Chicago, per cwt., $23.18 compared with $22.92; milk, per cwt., $4.64 compared with $4.42; potatoes, New York, per cwt., $2.62½ compared with $2.17½; and tobacco, av., per lb., $.41⅝ compared with $.53.

MANUFACTURING AND MINING INDUSTRIES

In these industries, price increases during 1947, as compared with 1946, were also very substantial. Comparing October 1947 with the corresponding quotations for 1946, the following price comparisons may be selected from those listed in the *Guaranty Survey* (Oct. 30, 1947): coffee, 27¢ per lb. compared with 21.69½¢; copper, 21.37½¢ per lb. compared with 14.25¢; hides, 33¾¢ per lb. compared with 15½¢; pig iron, $36.00 per gross ton compared with $28.00; steel billets, Pittsburgh, $45,00 per gross ton compared with $39.00; lead, 15.00¢ per lb. compared with 8.25¢; petroleum, Pennsylvania, $4.50 per bbl. compared with $3.41; rosin, $8.05 per cwt. compared with $7.82; rubber, 19½¢ per lb. compared with 22½¢; sugar, 6.32¢ per lb. compared with 5.57½¢; tin, 80.00¢ per lb. compared with 52.00¢; wool, Ohio fine delaine, $1.27 per lb. compared with $1.09; and zinc, 10.50¢ per lb. compared with 9.25¢.

NEW CORPORATE FINANCING

The total new capital financing for the first nine months of 1947 (latest available) aggregated $2,681,369,000 as compared with $1,990,000,000 for the corresponding period of 1946, and with $927,000,000 for the same period of 1945. The 1947 total of $2,681,000,000 also compares with $459,000,000 for the corresponding period of 1944, $200,000,000 for 1943, $614,000,000 for 1942, $770,000,000 for 1941, $458,000,000 for 1940, $311,000,000 for 1939,

CORPORATE FINANCING

	1946		1947	
	Capital	Refunding	Capital	Refunding
January	$131,170,000	$112,954,000	$252,109,000	$102,635,000
February	47,089,000	264,262,000	128,343,000	30,924,000
March	127,315,000	284,215,000	309,822,000	139,824,000
April	289,600,000	362,663,000	376,689,000	73,215,000
May	191,930,000	663,502,000	210,666,000	317,498,000
June	307,350,000	366,065,000	517,009,000	210,657,000
July	366,543,000	345,174,000	483,242,000	123,226,000
August	354,302,000	92,057,000	148,132,000	147,305,000
September	170,290,000	144,180,000	256,357,000	122,187,000
October	266,635,000	65,208,000		
November	589,878,000	86,316,000		
December	668,968,000	105,385,000		

Source: *Survey of Current Business*, November, 1947.

$316,000,000 for 1938, and $1,154,000,000 for 1937. It should also be noted that a considerable monthly fluctuation in new capital flotations took place during 1947. Thus, for February and August, the monthly totals reached less than $150,000,000, while, for June and July, the monthly totals reached $517,000,000 and $483,000,000, respectively.

The total of refunding issues for the first nine months of the year showed a decided decrease as compared with 1946, the total standing at $1,267,000,000 in contrast to the corresponding figure for the same period of 1946 of $2,635,000,000. The 1947 figure also compares, for the corresponding period, with $3,509,000,000 for 1945, $1,362,000,000 for 1944, $445,000,000 for 1943, and $296,000,000 for 1942. The 1947 figure may also be compared with the corresponding figures of $1,354,000,000 for 1941 and $1,252,000,000 for 1940. It should also be noted that the new capital totals for the first nine months of 1947 ($2,681,000,000) is considerably less than the total for all of 1946, namely, $3,515,000,000. By way of contrast, the refunding total for the first nine months of 1947 ($1,267,000,000) is less than half of the 1946 yearly total of $2,892,000,000.

YEARLY TOTALS

	Capital	Refunding
*1947	$2,681,369,000	*$1,267,571,000
1946	3,515,118,000	2,891,981,000
1945	1,255,405,000	4,911,361,000
1944	631,522,000	2,422,620,000
1943	375,623,000	684,997,000
1942	637,899,000	419,866,000
1941	1,040,042,000	1,552,143.000
1940	736,382,782	2,026,195,056
1939	371,249,537	1,807,623,508
1938	871,998,950	1,267,245,739
1937	1,225,012,213	1,208,679,946
1936	1,214,950,299	3,416,995,382
1935	403,569,958	1,863,858,807
1934	178,257,949	312,836,500
1933	160,717,178	220,866,478
1932	325,361,625	318,533,720
1931	1,763,448,723	825,516,700
1930	4,944,403,166	528,875,877
1929	8,649,439,560	1,386,921,569
1928	6,079,602,416	1,738,274,615
1927	5,391,008,544	1,928,187,260
1926	4,357,002,750	942,550.970
1925	4,100,725,167	637,384,524
1924	3,322,295,764	516,275,300
1923	2,702,496,155	530,343,942

* Nine months.

Source: *Commercial and Financial Chronicle.* 1941–1947 figures from *Survey of Current Business.*

BANK CLEARINGS

Bank clearings for 1947, owing largely to inflationary tendencies, rose considerably above those of 1946 and 1945. The grand total for the week ended Nov. 22 (*Commercial and Financial Chronicle*), for 112 cities, was $15,823,000,000 as compared with $13,309,000,000 for the corresponding week of 1946, an increase of 18.9 per cent. For the corresponding week of 1945 and 1944, the totals were $10,624,000,000 and $9,710,000.000, respectively. Exclusive of New York City, the nation's Federal Reserve Districts showed total bank clearings for the week ended Nov. 22 of $7,969,000,000, an increase of 19.2 per cent, as compared with the 1946 corresponding week's total of $6,683,000,000. The showing for 1947, exclusive of New York City, also compares with $4,720,000,000 and $4,446,000,000 for the corresponding week of 1945 and 1944, respectively. The respective gains and losses for each of the 12 Federal Reserve Districts, for the week ended Nov. 22, 1947, in comparison with 1946, are shown by the following table:

Federal Reserve District	1947 (millions)	1946 (millions)	Increase or Decrease %
First—Boston (12 cities)	634	555	+14.3
Second—New York (12 cities)	8,136	6,854	+18.7
Third—Philadelphia (11 cities)	1,121	927	+20.9
Fourth—Cleveland (7 cities)	941	773	+21.7
Fifth—Richmond (6 cities)	490	424	+15.6
Sixth—Atlanta (10 cities)	655	649	+ 0.8
Seventh—Chicago (17 cities)	1,060	890	+17.9
Eighth—St. Louis (4 cities)	608	500	+21.6
Ninth—Minneapolis (7 cities)	427	354	+20.7
Tenth—Kansas City (10 cities)	550	466	+18.1
Eleventh—Dallas (6 cities)	337	166	+102.6
Twelfth—San Francisco (10 cities)	865	740	+16.9
Grand Total (112 cities)	15,823	13,309	+18.9
Outside New York City	7,969	6,683	+19.2

SECURITY MARKETS

The 1947 security market was unusually inactive as well as steady in its price movements. Four main price trends occurred during the year, namely, (1) a slight appreciation during the first two months, (2) a bear market of moderate proportions during March to May, inclusive, (3) a small rise during June and July, and (4) a fluctuating market with nominal increases and declines during the balance of the year. Despite their very high price level, gilt edge bonds declined from the 1946 price level during the first nine months of 1947 by 1.8 per cent. The severest decline occurred in October from a September high average of 115.6 to an October high average of 114.4, or 1.2 points.

Combining the three leading groups of stocks (Standard and Poor's Index) —railroads, industrials, and public utilities—the October 1947 average price of 122.7, when compared with the January average of 120.8, shows an appreciation for the first ten months of the year of only 1.6 per cent. This compares with a depreciation of 18.1 per cent for the same period of 1946, and with an appreciation of 22.33 per cent for the same period of 1945. For the first ten months of 1947, the following price changes (comparing the October average with the January average) occurred in the four leading groups of stocks: railroad stocks with a decline from 46.8 to 42.5, or by 9.2 per cent; industrial stocks with an increase from 146.3 to 151.4, or by 3.5 per cent; public utilities with a decline from 79.7 to 74.5, or by 6.3 per cent; and coppers with a decline from 118.3 to 115.6, or by 2.3 per cent. The annual volume of transactions on the New York Stock Exchange was much less than during 1946, namely, 253,623,894 shares, as compared with 363,709,000 shares for 1946 and 377,564,000 shares for 1945. Million-share days were the exception, unlike the experience during 1946 and 1945. Transactions on the New York Curb Exchange were also much smaller than in 1946.

The 1947 stock market just about maintained an even level, speculative sentiment evidently regarding the 1946 bear market as having spent its force. Press accounts during recent months have been sufficiently optimistic to discard the possibility of a major depression, and yet current events seemed to inspire sufficient pessimism to prevent anything like a bull market. (See "The Security and Money Markets," p. 391.)

RAILROAD INDUSTRY

The year shows a somewhat larger railroad traffic than prevailed during 1946 and preceding five years, as described in previous issues of THE AMERICAN YEAR BOOK. According to the Association of American Railroads (announcement of Nov. 20, 1947), revenue freight car loadings during the first 45 weeks of 1947 showed an increase of 7.9 per cent over the same number of weeks during 1946, and an increase of 5.2 per cent in the similar period of 1945. Shipments of grain and grain products during the first 45 weeks of 1947 were larger by 12.2 per cent than for the same period of 1946; coal shipments by 10.7 per cent; coke shipments by 24.9 per cent; forest products by 7.6 per cent; and ore by 35.2 per cent. Decreases were shown in only two groups, namely, livestock shipments with a decrease of 15.7 per cent, and merchandise shipments with 3.2 per cent.

Earnings, though they show an increase, were not maintained as well as the volume of traffic. According to the Association of American Railroads, Class I railroads of the United States showed total operating revenues for the first nine months of 1947 of $6,328,000,000 as compared with $5,621,000,000 for the corresponding period of 1946. For the same period, total operating expenses were $4,959,000,000 as compared with $4,713,000,000 for 1946, the operating ratio per cent being 78.36 for 1947, compared with 83.83 for 1946. Taxes increased enormously, namely, to $687,000,000 as compared with $429,000,000 for 1946. Net railway operating income (before charges) was reported for the first nine months of 1947 as $558,000,000 compared with $367,000,000 for 1946, while net income (after charges) is estimated for the first three-quarters of 1947 at $316,000,000 compared with $105,000,000 for the same period of 1946. (See "Railroads," p. 557.)

COAL PRODUCTION

Despite labor troubles at the beginning of the year, production in this important industry exceeded the large output of 1946, which, as explained last year, was but slightly under the record output of 1945. According to the National Coal Association, bituminous production in 1947, for the first 11 months, totaled 563,055,000 tons, an increase of 74,801,000 tons over the same period of 1946, or by 15.3 per cent. With respect to anthracite production, however, the Anthracite Institute reported on Dec. 31 that the output for 1947 will approximate 54,170,000 net tons, 3,140,000 tons, or 5.5 per cent below 1946's production.

EXPORTS AND IMPORTS

Exports of merchandise for the first nine months of 1947 (latest available) totaled $10,826,000,000 as compared with $7,118,000,000 for the same period of 1946, and $7,975,000,000 for the corresponding 1945 period. The 1947 total compares with exports of merchandise for the first nine months of 1944 of $10,742,000,000, of $9,107,000,000 for the corresponding period of 1943, and with annual totals of $4,022,000,000 for 1940, $3,177,000,000 for 1939, $3,094,000,000 for 1938, $3,349,000,000 for 1937, and $5,241,000,000 for the record peace year of 1929.

Total imports during the first nine months of 1947 rose to $4,191,000,000 as compared with $3,519,000,000 and $3,172,000,000 for the corresponding period of 1946 and 1945. The 1947 total also compares with $2,923,000,000 for the corresponding period of 1944, with $2,449,000,000 for the same period of 1943, and with annual totals of $2,626,000,000 for 1940, $2,318,000,000 for 1939, $1,960,000,000 for 1938, $3,084,000,000 for 1937, and $4,399,000,000 for the record peace year of 1929.

The enormous difference between exports and imports during 1947, namely, $6,635,000,000, still reflects abnormal post-war conditions. As explained in previous years, this business barometer became badly warped by war conditions, and subsequently by post-war conditions which will wear off only in the course of time. A considerable portion of the huge difference is also attributable to the necessity of aiding foreign nations practically bankrupted by the war or rendered incapable of normal production efforts because of war ravages. Moreover, the inflation spiral in this country also raised greatly the dollar value of the large exports financed by the United States and sent abroad to prevent an economic collapse of impoverished countries.

AUTOMOTIVE INDUSTRY

Previous yearly accounts have described the almost complete operation of the industry in war production during the war period, the necessity for an almost complete reconversion to peacetime production, and the unfortunate slowing up of this reconversion during much of 1946 and 1947 by strikes and material bottlenecks, especially with respect to steel shortages.

Despite these difficulties, however, the industry made rapid headway during 1947. In its October issue, *Automobile Facts* reports that, during the first nine months of 1947, the automotive industry "produced more cars and trucks than were built in the entire twelve months of 1946"; that replacement parts production is running at double last year's output, which itself was a new high record, and that as a result "millions of cars that would otherwise be out of service are continuing to operate because their owners are able to get repair parts from motor plants"; that employment "has reached 789,000, or nearly 40% above pre-war levels, with weekly payrolls now totaling $44,000,000, or double the average of 1941"; and that "if production in the final three months of the year continues near the level of the previous quarter, 1947 will be the third highest civilian production year in the history of the industry, surpassed only by 1929 and 1937." The publication estimates the first nine months output for 1947 to exceed 2,500,000 passenger cars and better than 900,000 trucks and buses.

Many unusual procedures have been resorted to in order to overcome the lack of steel and thus make possible the aforementioned record. Some companies have made outright purchases of old steel rolling mills, in order to expand their steel-making facilities. Moreover, some segments of the industry are substituting aluminum for steel in making certain units, one company at the present time experimenting with aluminum for 43 parts now made of steel.

IRON AND STEEL OPERATIONS

Operations in this industry were exceedingly good during 1947. As explained by *The Iron Age* (Nov. 27):

"Despite raw material shortages and time consumed in repairing and rehabilitating equipment, steel ingot output in 1947 will be 34½ per cent greater than the previous peacetime peak in 1929, 61 per cent greater than the pre-war year of 1939 and about 30 per cent higher than the year 1940 when the United States was shipping large amounts of metal to the Allies.

"There is every indication that the total steel ingot output this year will amount to 85 million net tons, a figure only 5.1 per cent below the all-time high during the war year 1944 when steelmakers turned out 89.6 million tons of ingots. There is nothing in the picture now to prevent the 1947 record from being bettered in 1948."

According to the American Iron and Steel Institute, the week ended Nov. 30 showed the steel industry operating at 96.3 per cent of rated capacity, equivalent to 1,685,200 tons. This rate compares with 62.8 per cent or 1,106,800 tons for the corresponding week of 1946. The price of finished steel stood at 3.18925 cents per pound for the week of Nov. 18, 1947, compared with 2.70711 cents for the corresponding week of 1946. Pig iron (per gross ton) was quoted at $36.96 in 1947 (week of Nov. 18), compared with $28.13 in 1946 for the corresponding week. Scrap steel (per gross ton) was quoted at $41. 25 for the week of Nov.

18, compared with only $19.17 for the same week of 1946.

ELECTRIC OUTPUT

According to the Edison Electric Institute, the production of electricity by the electric light and power industry of the United States totaled 5,180,000,000 kwh. for the week ended Nov. 22, 1947. This output compares with 4,765,000,000 kwh. for the corresponding week of 1946, thus showing an increase of nearly 9.0 per cent. The output of 5,180,000,000 kwh. for the week ended Nov. 22, 1947, also compares with 4,097,000,000 kwh. for the week ended Dec. 7, 1945, 4,538,000,000 kwh. for the corresponding week of 1944, 4,560,000,000 kwh. for the week of Dec. 1, 1943, 3,884,000,000 kwh. for the corresponding week of 1942, 3,976,000,000 kwh. for 1941, 2,755,000,000 for 1940, and 1,415,000,000 for the depression year of 1932.

CONSTRUCTION WORK

Despite many difficulties by way of labor and materials, this important industry reached a new peak in building outlay. According to *Engineering News-Record,* the dollar volume of construction work to be recorded for 1947 will exceed any previous record, the estimated value of all types of building for the year, including heavy construction, exceeding $12,000,000,000. The previous record was set in 1942, with a total of $11,521,000,000. A peace-time record of $5,659,000,000 was recorded for heavy engineering work. Commercial buildings, including mass housing, rose slightly to $1,898,000,000, and highway work established a new peak of $794,000,000. New capital for construction purposes during 1947 is reported to total $3,886,000,000, or 13 per cent above the previous year.

Because of rising costs, however, the physical volume of construction work was less than in 1946. Costs in the field of heavy engineering work rose 17 per cent during 1947 as compared with 1946, whereas that year showed a rise of 18 per cent over 1945. Hourly wages in the building trades, it is reported, are 76 per cent higher than in 1940, while the average drop in output per man is 38 per cent.

COMMERCIAL FAILURES

The 1946 account explained that the failure record for the first nine months of that year showed an increase as compared with the exceedingly good record for the corresponding period of 1945, but not to any unusual degree. The number of business failures reported by Dun and Bradstreet for the first nine months of 1947 amounted to 2,510 as compared with only 762 for the same period of 1946, and with 646 for the same months of 1945. It also compares with 905 for the first nine months of 1944, and with 2,752, 7,641, 9,299, 10,398, and 11,197 for the corresponding nine months period of 1943, 1942, 1941, 1940, and 1939, respectively. The nine months record of 1947 (2,510) also compares with full yearly records of 12,836 for 1938, 9,490 for 1937, 9,607 for 1936, 12,244 for 1935, 12,091 for 1934, 19,859 for 1933, and 31,822 for 1932, the bottom year of the depression.

With respect to failure liabilities, 1947 also shows a considerable increase as compared with the remarkably good records of 1946 and 1945. For the first nine months of the year, total liabilities of failures amounted to $157,882,000 as compared with $34,333,000 for the corresponding period of 1946, with $24,189,000 for the same months of 1945, and, for the corresponding period, with $23,000,000, $37,000,000, $81,000,000, $106,000,000, $124,000,000, and $139,000,000 for 1944, 1943, 1942, 1941, 1940, and 1939. The 1947 nine-month record ($158,000,000) also compares with the following full yearly records of $30,000,000 for 1945, $32,000,000 for 1944, $45,000,000 for 1943, $101,000,000 for 1942, $136,000,000 for 1941, $167,000,000 for 1940, $168,000,000 for 1939, $247,000,00 for 1938, and $928,000,000 for 1932, the bottom year of the depression.

CORPORATE DIVIDENDS

According to the New York Stock Exchange's monthly magazine, *The*

Exchange, dividends of 954 separate common stocks listed on the New York Exchange (against 746 dividend payers in 1946), for the first nine months of 1947, exceeded those of the corresponding period of 1946 by 21.5 per cent. Two hundred and fifty-five paid the same dividend as in the preceding year, 496 increased their dividend distribution, 54 paid lower dividends, and 24 suspended or deferred dividends altogether. In the aggregate, the dividend disbursement of all the stocks for the nine months ended Sept. 30 amounted to $2,152,265,000 as compared with $1,771,371,000 during the corresponding period of 1946, and $1,555,577,000 in 1945.

The Stock Exchange's list contains 30 categories of stocks. Twenty-one of these categories showed exceptionally large gains, namely, "amusement," 29.7 per cent; "automotive," 32.1 per cent; "building," 46.4 per cent; "business and office equipment," 23.4 per cent; "chemical," 28.3 per cent; "farm machinery," 17 per cent; "food," 26.8 per cent; "garment manufacturers," 27.3 per cent; "leather and shoe manufacturers," 43.9 per cent; "machinery and metal products," 31.2 per cent; "mining," 51.4 per cent; "paper and publishing," 78.5 per cent; "petroleum," 28.3 per cent; "retail merchandising," 28.6 per cent; "rubber," 53 per cent; "ship operating," 64.1 per cent; "steel, iron and coke," 25.3 per cent; "textile," 111.3 per cent; "transportation services," 38.5 per cent; "United States companies operating abroad," 33.5 per cent; and "other companies," 68.2 per cent.

Three of the categories showed gains ranging from 7.3 per cent to 12.9 per cent, namely, "electrical equipment," 7.7 per cent; "utilities," 7.3 per cent; and "foreign companies," 12.9 per cent. Only five categories out of the 30 showed declines, namely, "air transportation," with a decline of 88.7 per cent; "aircraft manufacturers," with 67.3 per cent; "financial," with 1.6 per cent; "railroads," with 11.6 per cent; and "shipbuilding," with 22 per cent. Commenting on its detailed report, *The Exchange* (October, 1947) states:

"So far as dividend payments record the state of manufacturing and trade, the results of 1947's first three quarters in case of corporations with securities listed on the New York Stock Exchange indicate a pretty thorough rout of those prophets of 1946 who forecast a business reversal this year. The statistical exhibit accompanying this discussion shows not only that cash disbursements on listed common stocks increased considerably; the figures reveal, also, that some of the groups selected as targets for gloomy prognostications were liberal providers of stockholder income. Consumer goods, it will be recalled, were particularly tagged to go into a partial retreat. . . .

"More impressive than the percentage changes was the fact that nearly 85 per cent of Stock Exchange listed equities distributed dividends. An element counting in this high percentage was vested in a number of newly listed issues—added to the roster since September 30, 1946—which brought dividend records with them to the board. Of the 805 equities paying during the nine months, 61 per cent distributed more money than in the corresponding interval of last year. At the same time payments were reduced on 54 issues and eliminated or deferred on 24.

"The obverse side of the shield revealed that, although the general situation was cheerful for owners of common stocks, some important recessions occurred. Air transportation companies, involving 10, came within a shade of paying practically nothing; the airplane manufacturing category did better than the companion group but also dropped back. Railroads, too, while experiencing a high level of traffic recognized increased costs with an 11.6 per cent decline."

GENERAL BUSINESS CONDITIONS

Using the industrial production figures of the *Federal Reserve Bulletin* (adjusted for seasonal variation), it appears that the record for September 1947 (latest figures available), shows an increase as regards the majority of important lines of business as compared with 1946. Increases were shown in 10 leading types of industries, comparing September, 1947, with September, 1946, as follows: iron and steel with an increase from 185 to 195; machinery from 261 to 274; beehive coke from 352 to 427; meat packing from 38 to 146; newsprint consumption from 117 to 131; manufactured food products from 136 to 155; lubricating oil from 153 to 164; wheat flour from 135 to 137; petroleum crude from 149 to 163; and tobacco products from 157 to 163. Between the same dates, declines are recorded in seven leading industries, namely, transportation equipment from 240 for September, 1946, to 223 for September, 1947; plate glass from 161 to 151; non-ferrous metal and products from 172 to 168; textiles and products from 168 to 158; bituminous coal from 163 to 161; anthracite coal from 125 to 122; and silver from 58 to 51. Leather and products, it should be stated, maintained its position during the year, namely, at 119.

INDUSTRIAL PRODUCTION

(1935–1939 average = 100)

	Adjusted for Seasonal Variation			Without Seasonal Adjustment		
	Sept. 1947	Oct. 1946	Sept. 1946	Sept. 1947	Oct. 1946	Sept. 1946
MANUFACTURES						
Durable Goods						
Iron and steel	195	184	185	195	184	185
Machinery	p 274	268	261	p 274	268	261
Transportation equipment	p 223	237	240	p 223	237	240
Plate glass	151	158	161	151	158	161
Non-ferrous metal and products	p 168	184	172	p 168	184	172
Beehive coke	427	406	352	427	406	352
Non-Durable Goods						
Textiles and products	p 158	169	168	p 158	169	168
Meat packing	146	115	38	136	117	37
Wheat flour	p 137	135	135	p 150	143	147
Manufactured food products	p 155	146	136	p 178	158	164
Newsprint consumption	131	119	117	132	125	119
Leather and products	p 119	117	119	p 118	117	118
Petroleum refining	...	...	...	...	...	...
Lubricating oil	(Aug.) 164	159	153	(Aug.) 162	159	153
Tobacco products	163	173	157	172	179	166
Minerals						
Bituminous coal	p 161	160	163	p 161	160	163
Anthracite coal	p 122	124	125	p 122	124	125
Petroleum, crude	p 163	149	149	p 163	149	149
Iron ore	...	...	...	(Aug.) 326	252	282
Silver	(July) 51	60	58	(July) 50	59	59

(p = preliminary).
Source: *Federal Reserve Bulletin.*

COMMODITY PRICE INDEX

Using the U. S. Department of Labor wholesale price index for main groups of commodities, 1947 experienced a substantial upward trend in the price level, namely, from 141.5 for January 1947, to 157.4 for September (latest available). The January index of 141.5 compares with 107.1 for January 1946, 104.9 for January 1945, 103.3 for January 1944, 101.9 for January 1943, 96 for January 1942, and 80.8 for January 1941. During the first nine months of 1947, this index represents a price increase of 11.3 per cent, and since January 1941, of 94.6 per cent. The September 1947 figure of 157.4 compares with total yearly averages of 120.9 for 1946, 105.8 for 1945, 104 for 1944, 103.2 for 1943, 98.8 for 1942, 87.3 for 1941, 78.6 for 1940, 77.1 for 1939, 78.6 for 1938, 86.3 for 1937, 64.9 for 1932 (the depression year), and 154.4 for 1920, the highest yearly average under this index since the beginning of the century. As already explained under the sections dealing with "Agriculture" and "Manufacturing and Mining Industries," price changes for leading commodities in these fields during 1947 were mostly upward to a substantial extent.

It is also interesting to note that the United Kingdom Board of Trade index shows a very substantial increase for 1947, namely, from 179.1 for January 1947, to 192.3 for September (latest available). The latter figure compares with 169.6 for January 1946, 167.2 for January 1945, 164 for January 1944, 162.1 for January 1943, 156.4 for January 1942, and 149.5 for January 1941. In tabular form, the index numbers of the Department of Labor and of the United Kingdom Board of Trade for leading groups of commodities at the close of the year, compared with former years, are as follows:

INDEX NUMBERS OF COMMODITY PRICES

	U. S. Dept. of Labor		U. K. Board of Trade	
	1946	1947	1946	1947
January	107.1	141.5	169.6	179.1
February	107.7	144.5	169.4	180.6
March	108.9	149.5	169.7	181.0
April	110.2	147.7	170.3	184.5
May	111.0	147.1	170.8	186.4
June	112.9	148.0	171.2	187.2
July	124.7	150.8	174.1	190.6
August	129.1	153.6	174.3	191.2
September	124.0	157.4	174.9	192.3
October	134.1		175.1	
November	139.7		177.3	
December	140.9		177.3	

Source: U. S. Dept. of Labor—*Standard Trade & Security* "Current Statistics." U. K. Board of Trade—"Monthly Digest of Statistics," H. M. Stationery Office.

BUREAU OF LABOR STATISTICS WHOLESALE PRICE INDEX FOR MAIN GROUPS OF COMMODITIES

(1926 = 100)

Commodity Groups	Dec. 13, 1947	Dec. 14, 1946	Dec. 15, 1945	Dec. 23, 1944	Dec. 18, 1943
All Commodities	161.4	139.7	106.7	104.6	102.9
Farm Products	196.2	168.7	131.3	126.2	121.8
Foods	179.0	161.3	108.3	105.7	105.7
Hides and Leather Products	204.9	170.7	119.4	116.7	117.9
Textile Products	146.3	132.5	100.6	99.0	97.2
Fuel and Lighting Materials	120.2	96.1	85.2	83.7	82.6
Metals and Metal Products	151.5	132.7	105.3	103.9	103.9
Building Materials	188.4	151.1	118.8	116.4	113.4
Chemicals and Drugs	135.1	125.4	96.1	104.8	100.3
Housefurnishing Goods	135.2	120.0	106.4	106.1	104.4
Miscellaneous	119.8	107.9	95.0	93.9	93.0
Raw Materials	180.9	154.3	119.7	115.4	112.1
Semi-manufactured Articles	157.0	133.7	96.8	94.7	93.1
Manufactured Products	153.7	134.8	102.6	101.3	100.4
All Commodities Other Than Farm Products	153.7	133.4	101.3	99.8	98.9
All Commodities Other Than Farm Products and Foods	143.5	122.9	100.5	99.0	97.8

Source: *Commercial and Financial Chronicle.*

YEARLY AVERAGE

U. S. Dept. of Labor

1904	59.7	1926	100.0
1905	60.1	1927	95.4
1906	61.8	1928	96.7
1907	65.2	1929	95.3
1908	62.9	1930	86.4
1909	67.6	1931	73.0
1910	70.4	1932	64.9
1911	64.9	1933	66.0
1912	69.1	1934	75.0
1913	69.8	1935	80.0
1914	68.1	1936	80.8
1915	69.5	1937	86.3
1916	85.5	1938	78.6
1917	117.5	1939	77.1
1918	131.3	1940	78.6
1919	138.6	1941	87.3
1920	154.4	1942	98.8
1921	97.6	1943	103.2
1922	96.7	1944	104.0
1923	100.6	1945	105.8
1924	98.1	1946	120.9
1925	103.5	1947	157.4 (September figure)

LABOR CONDITIONS

With respect to labor conditions, using September as the basis (latest date from the *Federal Reserve Bulletin*), 1947 employment shows only minor increases in most of the important lines as compared with the same month of 1946, most of the large increases having occurred in the previous year. For iron and steel, the increase (unadjusted for seasonal variations) extended from 152.7 to 159.4, machinery except electrical from 210.3 to 224.8, automobiles from 196.0, to 198.2, lumber and timber and basic products from 138.6 to 159.9, furniture and lumber products from 123.5 to 133.2, apparel and other finished products from 132.9 to 146.5, food products from 137.5 to 152.7, paper and allied products from 140 to 143.5, printing and publishing from 122.3 to 131.5, chemical and allied products from 184 to 194.2, products of petroleum and coal from 147.8 to 153.6, and "miscellaneous industries" from 176.9 to 178.5. For the total of durable goods (unadjusted for seasonal variation), the increase in employment from September 1946, to September 1947, extended from 173.1 to 178.6, and, when adjusted for seasonal variation, from 172.7 to 178.2. For the total of non-durable goods (unadjusted) the increase from September 1946, to September 1947, extended from 130.9 to 137.4, and, when adjusted, from 129.6 to 136. Of all the groups included in the *Federal Reserve Bulletin's* list, only eight showed decreases or no change during the year, from September to September (unadjusted), namely, electrical machinery with a decline from 217.3 to 216.6, transportation equipment except automotive from 286.8 to 251.2, non-ferrous metals from 179.5 to 172.6, stone, clay and glass products from 142.5 to 142.8, textile mill and fiber products from 105.2 to 104, leather products from 103.1 to 105.1, tobacco products from 93.5 to 92.8, and rubber products from 189.1 to 180.2.

With respect to payrolls, much larger changes were shown in nearly all of the leading industries, according to the payroll index of the *Federal Reserve Bulletin*. The leading increases from September 1946 to August 1947, are as follows (unadjusted for seasonal variation): iron and steel with an increase from 273.6 to 314.4, electrical machinery from 397.2 to 420.3, machinery except electrical from 376.2 to 426.7, automobiles from 330.3 to 340.1, lumber and timber and basic products from 285.2 to 387.3, furniture and lumber products from 254.4 to 293.3, stone, clay, and glass products from 267 to 299.7, apparel and other finished products from 283 to 303.2, leather products from 204.7 to 220.4, food products from 246.5 to 313.9, paper and allied products from 259.8 to 300.6, printing and publishing from 203.1 to 235.5, chemical and allied products from 329.1 to 383.6, products of petroleum and coal from 257.3 to 297.2, and "miscellaneous industries" from 339.3 to 347.5. For durable goods, taken as a whole, the payroll figure shows an increase (September 1946 to August 1947) from 323.3 to 357.2, and for non-durable goods from 258.1 to 288.4. Of all the groups included in the *Federal Reserve Bulletin's* list, both durable and non-durable, only five showed payroll decreases, or no substantial change, during the year from September 1946 to August 1947, namely, transportation equipment except automotive, with a decrease from 524.1 to 482.1, nonferrous metals from 331.8 to 332.9, textile mill and fiber products from 235.5 to 239.8, tobacco products from 196 to 203, and rubber products from 363.9 to 357. According to the latest available report of the *Federal Reserve Bulletin,* the 1947 showing for the leading types of industries, as regards both employment and payrolls, is as follows:

FACTORY EMPLOYMENT AND PAYROLLS

	Employment						Payrolls		
	Adjusted for Seasonal Variation			Unadjusted for Seasonal Variation			Unadjusted for Seasonal Variation		
	Sept. 1947	Sept. 1946	Sept. 1945	Sept. 1947	Sept. 1946	Sept. 1945	Aug. 1947	Sept. 1946	Sept. 1945
Durable Goods									
Iron and Steel				159.4	152.7	125.1	314.4	273.6	206.9
Electrical Machinery				216.6	217.3	171.5	420.3	397.2	268.5
Machinery, except Electrical				224.8	210.3	172.7	426.7	376.2	285.7
Transportation Equipment except Automotive				251.2	286.8	496.5	482.1	524.1	844.1
Automobiles				198.2	196.0	105.9	340.1	330.3	151.2
Nonferrous Metals				172.6	179.5	131.2	332.9	331.8	223.3
Lumber and Timber Basic Products				159.9	138.6	120.8	387.3	285.2	215.3
Furniture and Lumber Products				133.2	123.5	92.4	293.3	254.4	164.0
Stone, Clay and Glass Products				142.8	142.5	105.7	299.7	267.0	175.7
*Total of Durable Goods	p178.2	172.7	144.8	178.6	173.1	144.9	357.2	323.3	246.2
Non-Durable Goods									
Textile Mill and Fiber Products				104.0	105.2	91.9	239.8	235.5	169.7
Apparel and Other Finished Products				146.5	132.9	115.3	303.2	283.0	208.4
Leather Products				105.1	103.1	88.0	220.4	204.7	160.2
Food Products				152.7	137.5	138.4	313.9	246.5	226.6
Tobacco Products				92.8	93.5	89.5	203.0	196.0	176.0
Paper and Allied Products				143.5	140.0	117.5	300.6	259.8	200.7
Printing and Publishing				131.5	122.3	98.8	235.5	203.1	147.7
Chemical and Allied Products				194.2	184.0	172.1	383.6	329.1	292.2
Products of Petroleum and Coal				153.6	147.8	123.3	297.2	257.3	212.1
Rubber Products				180.2	189.1	136.5	357.0	363.9	231.3
Miscellaneous Industries				178.5	176.9	136.5	347.5	339.3	239.2
*Total of Non-Durable Goods	136.0	129.6	114.5	137.4	130.9	115.6	288.4	258.1	202.6

* Under "Adjusted for Seasonal Variation," only totals are furnished, instead of figures for individual industries.
Source: *Federal Reserve Bulletin,* November 1947.

THE SECURITY AND MONEY MARKETS

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SHARE TRENDS AND MOVEMENTS

Stock market* movements during 1947 indicated four main trends, namely, (1) a slight appreciation in the price level during the first two months, (2) a bear market of moderate proportions during March and May inclusive, (3) a rise of moderate proportions during June and July, and (4) a vacillating market with moderate rises and declines during the balance of the year. As a whole, the year's market may be described as having been comparatively inactive, non-sensational as to price movements, and slightly bearish when compared with the closing price level of 1946.

The average monthly price level for the leading groups of stocks, at the end of the first ten months of the year (latest available), showed a slight depreciation of 1.6 per cent as contrasted with a decline of 18.1 per cent during the same period of 1946. For the four leading groups of stocks, the price level change for the first ten months of the year, comparing the January and October monthly averages, amounted to a decline of 9.2 per cent for railroad stocks, an increase of 3.5 per cent for industrials, a decline of 6.5 per cent for public utilities, and a decline of 2.3 per cent for the copper group. The total volume of transactions on the New York Stock Exchange reached only the 254,000,000-share figure, as compared with 364,000,000 shares for 1946, while transactions on the Curb Market (72,000,000 shares) were also much smaller than those for 1946. Million-share days on the New York Stock Exchange were the exception, and only three months of the first ten months of the year showed daily averages in excess of 1,000,000 shares, while for the month of August the daily average was as low as 674,000 shares.

Using a combined average for the leading groups of stocks, namely, railroads, industrials, and public utilities (Standard and Poor's index), the 1947 market was characterized by three minor trends with only slight variations throughout the year. These three price trends of the year may be indicated as follows: (1) a slight rise from January to February with monthly averages increasing from 120.8 to 125.5, an increase of 3.9 per cent; (2) a decline from March to May, inclusive, namely, from 125.5 (February average) to 113.9 (May average), a decrease of 9.2 per cent; and (3) a fluctuation back and forth from June to October, namely, a rise to 125.2 for July, or to the previous February level, and thereafter a slight decline to 122.7 for October.

BOND PRICE TRENDS

Bonds, using the Standard and Poor's index for corporate bonds, maintained for the first ten months of 1947 an unusually high price level, although slightly under the level for 1946, the January, 1947, high average being 116.7 and the October average 114.4. During October, however, this average declined considerably from 116.2 (August) to 114.4 (October), a decline of 1.8 points. Comparing January of 1947 with October of 1947, bonds show an average price depreciation of approximately 2 per cent, as compared with a depreciation of 3.3 per cent for the corresponding period of 1946.

SECURITY MARKET FACTORS

During 1947, post-war problems became increasingly apparent to the speculative community and were evaluated with a greater degree of certainty than was the case during 1946 and 1945. The more settled condition of the year's market is probably attributable to this factor. Moreover, the unfavorable nature of present problems was probably substantially discounted by the violent bear market of 1946.

At the beginning of 1947 prospective corporate earnings seemed uncertain because of the huge wave of bitter strikes in the nation's leading industries, but as the year progressed most of the basic industries, with the exception of railroads, managed to make a fairly satisfactory adjustment, and corporate earnings and dividend declarations remained remarkably satisfactory. In this adjustment, corporations were aided by price increases in their products with little buyer's resistance. In other instances, like the railroads and public utilities, price increases were authorized by government agencies, although, it is generally felt, not to an extent commensurate with the increased wage level. As a whole, the necessary readjustment was spotty in different fields, and the rate of adjustment generally was much slower than had been anticipated. Moreover, all through the year the inflation spiral was feverish and ever reaching new heights, with labor constantly seeking, through wage increases, to catch up to the ever increasing cost of living. As a result, the speculative community was largely motivated by inflation thinking, and apparently not inclined to give the market a rising trend. Apparently the bear market of 1946 had spent its force, but the 1947 market could do little more than maintain a *status quo*. The speculative community seemed to feel that a high postwar boom was unlikely to materialize, yet it also seemed to feel that the backlog of needed goods, repairs, and construction is so large as to make a serious business depression also unlikely.

At the time of this writing, current press accounts are stressing the following factors as influencing speculative thinking: (1) the large volume of business despite unsettled conditions, and the virtual absence of unemployment; (2) the unsettled character of the commodity markets, with their high price level continually subject to wild price fluctuations; (3) the rising inventories of retailers, and the apparent growth of buyer's resistance movements; (4) the speed of the inflation spiral, with its adverse effect upon the thinking of buyers, labor, and governmental bodies; (5) the constant threat by the Government of reinstituting governmental controls of one kind or another to stop the inflation spiral in certain basic commodities; (6) the continued high taxation, with little prospect for reduction, and the inability to reduce materially the huge national debt; (7) the first signs of a stiffening of long term money rates, already reflected in a drooping of the price level of preferred stocks and bonds; and (8) adverse developments in the foreign situation, so alarming as to necessitate the calling of a special session of Congress to combat starvation abroad and inflation at home. In view of all of these uncertainties, it is not at all strange that the 1947 stock market gave evidence throughout the year of its inability to recover any substantial part of the major market price decline of 1946.

INDUSTRIAL SHARE PRICES

The three-fold trend of the 1947 stock market is indicated by the monthly stock averages of the Standard and Poor's barometric index for various leading groups of stocks. Fifty representative industrial stocks had an average price of 146.3 for January, as compared with an average of 145.3 for December, 1946, and 172.8 for January of 1946. Thereafter the succeeding month showed a minor increase, the average for February being 152.5. Following February, a decrease occurred during March, April, and May, namely, to 146.8, 141.7, and 139.7, the latter figure being 8.4 per cent below the February average. Following May, an increase again took place to 154.2 for July. Thereafter the market fluctuated back and forth slightly, the August, September, and October averages being 150.9, 147.0, and 151.4, respectively. The October average of 151.4, when compared with the January average of 146.3, shows a slight increase in the average monthly price level of about 3.5 per cent. The October average of 151.4 compares with 142.9 for October, 1946, 159.7 for October, 1945, 127.1 for October, 1944, 117.3 for October, 1943, and with reference to approximately the same period (November) 95.2 for 1942; 93.8 for 1941; 106.9 for 1940; 123.0 for 1939; 129.1 for 1938; 107.8 for 1937; 168 for January, 1937, and 53.5 for the yearly average of 1932, the bottom year of the 1930-36 depression. The 1947 increase in this group of 3.5 per cent for the first ten months compares with a decline for the same period of 1946 of 17.3 per cent, and with a rise for the same period of 1945 of slightly over 21.1 per cent. It is interesting to note that the October, 1947 average of 151.4 is nearly three times the 1932 depression yearly average of 53.5.

RAILROAD SHARES

With respect to 20 representative railroad stocks, the monthly price average of the Standard and Poor's barometric figures shows about the same trends already explained for the industrial list. For January 1947, the monthly average stood at 46.8. Thereafter the monthly average rose to 48.7 for February and then declined to 44.6 for March, to 41.3 for April, and to 38.8 for May, a decline of 20.3 per cent as compared with the February average. By July, the monthly average had again increased to 44.5, or approximately to the March average of 44.6. Following July, the price level fluctuated back and forth, the monthly averages for August, September, and October being 43, 41.7, and 42.5, respectively. The October average of 42.5, when compared with the January average of 46.8, shows a decline of 9.2 per cent. It compares with 45.1 for October, 1946; 59 for October 1945; 42.1 for October 1944; 37.5 for October 1943; 29.7 for October 1942; 27.8 for November 1941; 30.1 for November 1940; 35.5 for November 1939; 31.7 for November 1938; 33.1 for November 1937; 47 for January 1936; and with yearly averages of 36 for 1935; 42.9 for 1934; 39 for 1933; and 26.8 for the bottom depression year of 1932. It is interesting to compare the October 1947 average of 42.5 with the 1932 low June monthly average of 15.

PUBLIC UTILITIES

For the public utility group, the 1947 average price movement reflects the same trends shown by the other major groups of shares. According to the Standard and Poor's index for 20 representative public utility stocks, the monthly average rose from 79.7 for January to 80.9 for February. During the following months the averages stood at 77.6 for March, 74.7 for April, 72.5 for May, and 73.1 for June. Following June, the price fluctuation was small and slightly declining, the July, August, September, and October averages being 76.2, 75.8, 74.5, and 74.5, respectively. The October average of 74.5, when compared with the January average of 79.7, shows a decline in the utility price level of 6.3 per cent. The October 1947, average of 74.5 compares with 74.3 for October of 1946, with 77.3 for the corresponding month of 1945; 55.9 for 1944; 51 for 1943; 33.7 for 1942; 37.9 for November 1941; 59.8 for November 1940; 69.5 for November 1939; 66.4 for November 1938; 63.3 for November 1937; 100.9 for January 1937; 88.4 for January 1936; and with yearly averages of 62.8 for 1935, 66.5 for 1934, 81.8 for 1933, and 88.7 for 1932.

COPPER SHARES

For a representative list of seven copper stocks, the average monthly price level for 1947 again shows trends similar to those already noted for the industrial, railroad, and public utility groups. From January to February the average rose from 118.3 to 121. Thereafter a decline occurred to 118.8 for March, to 114.1 for April, to 109.7 for May, and to 108.1 for June. Following June, the price fluctuated back and forth, but only slightly, namely, to 115.3 for July, 114.4 for August, 113 for September, and 115.6 for October. The October average of 115.6, when compared with the January average of 118.3, shows a depreciation in this group of 2.3 per cent. The year's October average of 115.6 compares with 109.7 for October 1946, with 110.6 for October 1945, and with October averages of 82.8 for 1944, 77.4 for 1943, 80.9 for 1942, and 83.4 for 1941.

Combining the stocks used by the Standard and Poor's index for industrials, railroads, and public utilities, the average monthly 1947 price level rose from 120.8 for January to 125.5 for February (3.8 per cent appreciation), then declined to 120.4 for March, to 116 for April, and to 113.9 for May. Thereafter a rise occurred, namely, to 117.9 for June and 125.2 for July. During the next three months the price level fluctuated slightly, namely, to 122.7 for August, 119.6 for September, and 122.7 for October. The October average of 122.7, when compared with the January average of 120.8, shows an appreciation for the first ten months of the year of 1.5 per cent. This compares with a depreciation of 18.1 per cent for the same period of 1946, and with an appreciation of 22.3 per cent for the same period of 1945. It should also be pointed out that the 1947 October average of 122.7 compares with 117.2 for the corresponding month of 1946, and with 131 and 102.5 for the same months of 1945 and 1944.

SECURITY MARKET PRICES

	Railroads 20 stocks		Industrials 50 stocks		Public Utilities 20 stocks		*Copper 7 stocks		Stocks 90 stocks	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
January	66.7	46.8	172.8	146.3	88.5	79.7	132.2	118.3	143.1	120.8
February	66.3	48.7	173.1	152.5	89.5	80.9	136.3	121.0	143.5	125.5
March	62.7	44.6	167.8	146.8	88.8	77.6	131.4	118.8	139.2	120.4
April	63.7	41.3	179.5	141.7	93.7	74.7	139.1	114.1	148.2	116.0
May	63.6	38.8	179.8	139.7	94.3	72.5	142.8	109.7	148.5	113.9
June	66.1	39.9	177.8	145.2	94.5	73.1	139.7	108.1	147.6	117.9
July	62.8	44.5	173.5	154.2	90.2	76.2	138.8	115.3	143.4	125.2
August	59.9	43.0	170.5	150.9	88.4	75.8	133.9	114.4	140.6	122.7
September	48.3	41.7	145.9	147.0	75.5	74.5	109.2	113.0	119.9	119.6
October	45.1	42.5	142.9	151.4	74.3	74.5	109.7	115.6	117.2	122.7
November	46.6		141.5		76.0		115.1		116.7	
December	48.4		145.3		79.5		123.8		120.2	

* Copper figures use 1935–1939 as a base period. All other figures use 1926 as a base period. The above figures are an average for the month based on daily closing prices, except for Copper, which are weekly closing prices.

(Source of data—Standard & Poor's *Trade and Securities, Current Statistics.*)

MARKET VALUE OF SHARES

Using the figures of the New York Stock Exchange, the total value of 1,879,000,000 of listed shares on that Exchange stood at $68,884,000,000 at the beginning of November 1947. This value compares with $66,115,000,000 at the beginning of November 1946; $69,561,000,000 at the same date in 1945; $53,087,000,000 in 1944; $45,101,000,000 at the close of November 1943; and $37,374,000,000 at the close of November 1942. The year's Nov. 1 value of $68,884,000,000 may also be compared with $37,882,000,000 on Dec. 1, 1941; $41,848,000,000 at the same date in 1940; $45,500,000,000 in 1939; $46,081,000,000 in 1938; $40,716,000,000 in 1937; and with $62,618,000,000 for March of 1937, the high mark before the bear market of 1937-38 began its course.

MONTHLY STOCK AVERAGES

The average monthly All Stock Price Index as compiled by the New York Stock Exchange, stood at 78.7 for Nov. 1, 1947, as compared with 79.3 for November 1946, and for the corresponding date, 80.2 for 1945, 69.7 for 1944, 59.8 for 1943, 50.6 for 1942, 51.6 for 1941, 57 for 1940, 63.2 for 1939, and 64.1 for 1938. The Nov. 1, 1947, average of 78.7 compares with the following Dec. 1 averages for preceding years: 37.8 for 1937, 56.01 for 1936, 45.85 for 1935, 35.59 for 1934, 32.78 for 1933, and 25.61 for 1932.

VOLUME OF STOCK TRANSACTIONS

Stock transactions on the New York Stock Exchange during 1947 were much smaller than during 1946, namely, 253,623,894 shares as compared with 363,709,000 shares for 1946, 377,564,000 shares for 1945, 263,074,000 shares for 1944, and 278,742,000 shares for 1943. During 1947, only January, February, July, and October showed total transactions above the 23,000,000 share mark per month. Every other month during the first ten months of the year showed a monthly total under 21,000,000 shares. June, August, and September record such small totals as 17,483,000, 14,153,000, and 16,017,000 shares, respectively. With the exception of February, July, and October, when the daily average of transactions (excluding Saturdays) was 1,132,000, 1,158,000, and 1,223,000 shares, respectively, the daily average for every other month from January to October was under and in nearly all cases considerably under the million share total. The 1947 total of 253,624,000 shares compares with 363,709,000 shares for 1946; 377,564,000 shares for 1945; 263,074,000 shares for 1944; 278,742,000 shares for 1943; 125,678,000 shares for 1942; 170,534,000 shares for 1941; 207,605,000 shares for 1940; and 1,125,000,000 for 1929, the highest figure on record.

SHARES TRADED ON THE NEW YORK STOCK EXCHANGE

	1947		1946	
	Shares	Daily Average, Excluding Sat.	Shares	Daily Average, Excluding Sat.
January	23,557,000	973,000	51,510,000	2,142,000
February	23,758,000	1,132,000	34,093,000	1,711,000
March	19,337,000	824,000	25,664,000	1,092,000
April	20,620,000	892,000	31,427,000	1,369,000
May	20,616,000	901,000	30,410,000	1,302,000
June	17,483,000	833,000	21,717,000	1,086,000
July	25,473,000	1,158,000	20,595,000	936,000
August	14,153,000	674,000	20,807,000	946,000
September	16,017,000	763,000	43,450,000	2,173,000
October	28,635,000	1,223,000	30,384,000	1,279,000
November	16,371,000	868,000	23,819,000	1,173,000
December			29,834,000	1,297,000

YEARLY TOTALS OF SHARE SALES

1920	226,640,400	1934	323,871,840
1921	172,712,716	1935	381,666,197
1922	258,652,519	1936	496,063,099
1923	236,115,040	1937	409,468,885
1924	281,991,597	1938	297,446,059
1925	454,404,733	1939	262,015,799
1926	450,845,255	1940	207,605,359
1927	576,563,218	1941	170,534,363
1928	919,661,825	1942	125,677,963
1929	1,124,991,490	1943	278,741,765
1930	810,038,161	1944	263,074,018
1931	579,921,426	1945	377,563,575
1932	425,235,829	1946	363,709,312
1933	654,874,210	1947	253,623,894

On the New York Curb market sales of shares during 1947 totaled only 72,380,000, as compared with 137,220,000 shares for 1946, 143,337,000 shares for 1945, 71,062,000 shares for 1944, and 71,382,000 shares for 1943. The year's total of 72,380,000 shares also compares with 22,328,000 for 1942, 34,691,000 for 1941, 43,000,000 for 1940, and 474,000,000 for 1925, the largest on record.

THE BOND MARKET

Bond sales on the New York Stock Exchange during 1947 indicated a comparatively dull market, the total being only $1,075,541,000, as compared with $1,364,000,000 for 1946; $2,262,000,000 for 1945; $2,695,000,000 for 1944; $3,255,000,000 for 1943; $2,313,000,000 for 1942; $2,114,000,000 for 1941; and $1,672,000,000 for 1940.

During 1947, bonds maintained an unusually high price level throughout the year, although the price trend was substantially downward. Using Moody's Bond Prices as a basis (*Commercial and Financial Chronicle*, Nov. 27, 1947), the average for domestic corporation bonds stood at 112.19 on Nov. 25, 1947, as compared with 116.41 a year before, thus showing a decline of 4.22 points for the year. For corporate bonds of the Aaa group the average price for Nov. 25, 1947, was 117 and for the corresponding date of 1946 121.04. For the Aa group, the two average prices were 115.04 and 119; for the A group 112.37 and 116.02; and for the Baa group 105 and 109.79. For United States government bonds, the Nov. 25, 1947 price stood at 101.89, while a year before the price was 103.5. For the railroad group, according to the Moody classification, the Nov. 25, 1947 average price stood at 107.09, compared with 112 for the corresponding date of 1946; for the public utility group the corresponding prices were 113.89 and 117.6; and for the industrial group 115.63 and 119.01.

The extraordinarily high price of bonds brought the average bond yields to very low figures, although some improvement was shown over the low yields of 1946. According to Moody's Bond Yield Average, the average yield for all domestic corporation bonds was down to 3.05 per cent on Nov. 25, 1947, as compared with a yield of 2.83 per cent for the corresponding date of 1946. The yield for the Aaa, Aa, A and Baa groups was respectively 2.80, 2.90, 3.04, and 3.45 per cent, as compared with 2.60, 2.70, 2.85, and 3.18 per cent a year before. The yield on government bonds on Nov. 25, 1947 was 2.37 per cent as compared with 2.27 per cent on the same date in 1946. For the railroad group, the average yield was 3.33 per cent on Nov. 25, 1947, compared with 3.06 per cent a year previously, while for the public utilities group and the industrial group the average yields in 1947 (Nov. 25) were 2.96 per cent and 2.87 per cent, respectively, compared with 2.77 per cent and 2.67 per cent for the corresponding date of 1946.

Using the Standard and Poor's barometric averages for a representative group of corporate bonds, the monthly high average stood at 116.7 for January 1947. Thereafter the price fluctuated slightly from month to month, the high average standing at 117.1 for February, 117 for March, 116.9 for April, 116.3 for May, 114.7 for June, 116.1 for July, 116.2 for August, 115.6 for September, and 114.4 for October. The October average of 114.4 shows a decline of 2.3 points from the January 1947, average of 116.7, and a decline of 5.8 points, or 4.8 per cent, from the January 1946, average of 120.2. It should also be noted from the accompanying table that the monthly fluctuation between high and low was relatively small for the first nine months of the year. May was the only month which showed a range between high and low of as much as 3 points.

COMPOSITE BOND PRICES FOR 1947

	High	Low
January	116.7	115.8
February	117.1	116.5
March	117.0	116.2
April	116.9	116.2
May	116.3	113.6
June	114.7	113.9
July	116.1	114.6
August	116.2	116.0
September	115.6	114.5
October	114.4	113.3
November		
December		

All bonds listed on the New York Stock Exchange (888 issues) showed a total market value of $138,336,000,000 at the beginning of November 1947. This compares with $140,245,000,000 at the corresponding date in 1946; $128,741,000,000 in 1945; and with $102,000,000,000 on Nov. 1, 1944; $91,000,000,000 on Dec. 1, 1943; $64,500,000,000 on Dec. 1, 1942; $55,000,000,000 in 1941; and $51,000,000,000 in 1940. The substantial increase in 1943-1947 figures, it should be explained, is largely attributable to the issue and continued maintenance of large amounts of United States government securities during those years. On Nov. 1, 1947, the average price of the aforementioned listed bonds stood at 101.19, which compares with 102.46 at the corresponding date of 1946, 103.16 in 1945, 100.71 in 1944, and with 99.02 in 1943, 96.11 in 1942, 94.80 in 1941, 93.58 in 1940, 91.24 in 1939, 90.34 in 1938, and 81.36 in the bottom depression year of 1932.

INTEREST RATES

	Commercial Paper 4–6 Months		Call Loans New York Stock Exchange Renewals—Average of Daily Renewal	
	1946	1947	1946	1947
January....	0.75	1.00	1.00	1.38
February...	0.75	1.00	1.00	1.38
March.....	0.75	1.00	1.00	1.38
April......	0.75	1.00	1.00	1.38
May.......	0.75	1.00	1.00	1.38
June.......	0.75	1.00	1.00	1.38
July.......	0.75	1.00	1.00	1.38
August.....	0.81	1.00	1.30	1.38
September .	0.81	1.06	1.38	1.38
October....	0.88		1.38	
November .	0.95		1.38	
December..	1.00		1.38	

Source: Standard & Poor's *Trade and Securities, Current Statistics*, November 1947.

THE MONEY MARKET

With respect to both time and call loan rates, the 1947 tendencies for the first nine months represent a slight stiffening of money rates as compared with 1946 and the preceding 12 years. As was the case during previous years, in fact as far back as 1933, New York time and call loan rates were quoted at only 1 per cent or slightly higher. Beginning with a January average of 1 per cent for four to six months prime commercial paper, and 1.38 per cent for call loans in New York, the average monthly rate remained fixed at these low figures for the first eight months of the year. During September, however, time rates rose to an average of 1.06 per cent, whereas call loan rates remained unchanged at 1.38 per cent for all of the first three-quarters of the year. The September average for time money of 1.06 per cent compares with 1 per cent for December 1946, and with 0.75 per cent for January, 1946. The September 1947 call loan average of 1.38 per cent compares with the same rate for the last four months of 1946 and with 1 per cent for January of that year.

According to the New York Stock Exchange's figures (Nov. 1, 1947), the borrowings of New York Stock Exchange members on collateral security continued to show a very small volume. The total of $333,000,000 for Nov. 1, 1947, compares with $371,000,000 for the corresponding date of 1946; with $911,000,000 for 1945; $878,000,000 for 1944; $718,000,000 for 1943; $342,000,000 for 1942; $436,000,000 for 1941; $362,000,000 for 1940; and $4,017,000,000 for 1929.

BANKING AFFAIRS

By Robert W. Bachelor

American Bankers Association

GENERAL

The year 1947 was a year of rising prices and inflationary pressures. Many factors contributed to these rising prices. Among inflationary forces were the foreign aid program, a cycle of wage increases in excess of increases in either the cost of living or productivity, a short corn crop, veterans' bonuses and relief benefits, agricultural price subsidies, housing subsidies, and United States Government spending at the rate of $37,000,000,000 a year. A large supply of liquid assets, as a result of financing the war, remained in the hands of the public.

Businesses have required more working capital to meet higher costs, to pay higher wages, and to finance more costly inventories. Borrowing from banks was one method of obtaining needed funds, and bank loans advanced substantially. Loans to commerce, industry, agriculture, and consumers were larger at the end of 1947 than at the beginning of the year. Total credit extended and total deposits increased only moderately, since banks sold United States Government securities as they expanded their loan portfolios.

DEPOSITS AND LOANS

Total deposits and currency outside the banks increased about $3,000,000,000 in 1947, due almost entirely to an expansion of time deposits. United States Government deposits were reduced, and demand deposits owned by individuals and businesses increased, by somewhat less than $3,000,000,000, making a total increase of about $5,500,000,000 in deposits and currency owned by individuals and businesses.

Deposits of individuals and businesses also increased slightly, due to additions to the monetary gold stock, totaling $2,250,000,000, offset in part by increased inventories of Treasury cash of nearly $1,000,000,000, and larger deposits of the United States Treasury with the Federal Reserve banks. The Federal Reserve System reduced its holdings of United States Government securities in an attempt to keep member bank reserve balances from increasing too rapidly.

Surveys of deposit ownership indicate that the command over demand deposits has been shifting from businesses to individuals. This has made it necessary for businesses to seek additional funds in the capital markets and from banks.

Banks expanded their loans by $7,000,000,000, and their investments in state and local government securities by $1,000,000,000, which increase nearly equaled their reduction of $9,000,000,000 in United States Government securities. More than $2,000,000,000 of gold was added to the monetary system and helped to increase bank deposits and bank reserves. Banks decreased loans for the purpose of purchasing and carrying United States securities by more than $1,000,000,000. Loans on real estate, and commercial, industrial, and agricultural loans increased, and there was some expansion in installment loans to consumers.

BANK EARNINGS AND CAPITAL

Earnings of banks that are members of the Federal Reserve System aggregated $350,000,000, after taxes, for the first half of 1947. This represented a decrease of 18 per cent from the corresponding period of 1946. Only one-third of total gross earnings was derived from United States Government securities in the first half of 1947, compared with almost one-half during the first half of 1946. Earnings were at the annual rate of 8.5 per cent of total capital funds. Two-thirds of earnings were retained by the banks to strengthen their capital position.

Capital accounts of member banks were increased nearly $500,000,000 in 1947, and on June 30, 1947 equaled 7 per cent of total deposits, compared with 6 per cent for the corresponding date of 1946. A substantial amount of new capital was invested in the banking business in 1946 and 1947. These were the first years since the early 1930's in which there was a substantial investment of funds not derived from earnings.

INTEREST RATES

The year 1947 was one of gradually rising interest rates on nearly all classes of loans. In July the Federal Reserve System allowed interest rates on Treasury bills to rise from the pegged rate of ⅜ to ¾ per cent. In subsequent months, the market rate advanced to nearly one per cent per annum on these three-months' securities. Rates on longer-term issues also were permitted to advance within a range of ⅛ to ¼ per cent.

The yield on Treasury bonds of 15 years or more to maturity reached a low of nearly 2 per cent in early 1946, but recovered and fluctuated around 2¼ per cent during most of 1947. In November, these long-term issues averaged to yield about 2⅜ per cent. On Dec. 24, after completion of the Treasury's current refunding operations, the support price was lowered to slightly above par for medium and long-term, fully taxable Treasury bonds. It was made clear that, whereas previously the Reserve System had been a reluctant buyer, it would now buy Treasury bonds aggressively at the new price level, in such amounts as might be necessary to clear the markets. Large purchases were necessary. In the period Dec. 26-30 inclusive, the Federal Reserve banks increased their holdings of Treasury bonds by $970,000,000. Commercial banks closed the year with substantial excess reserves due to sales of these securities.

Rates charged customers of city banks were advanced on several classes of collateral and banks became less willing to make term loans of long maturity. These increases in rates were notice to the business community that credit would be harder to obtain than in the immediate past. The Federal Reserve banks can maintain any rate they may choose on United States Government securities. Such rate can be supported by purchasing all securities offered at the posted prices. Continuation of support adds to the money supply of individuals and businesses, and adds to bank reserves. When the money supply expands until inflationary dangers threaten, then low money rates must be revised and higher yields (lower prices) must be offered on securities.

Rates paid by banks on savings accounts were advanced by many banks to encourage thrift and to supply the capital so much needed for industrial and municipal improvements.

GUARANTEES OF LOANS

The Reconstruction Finance Corporation abandoned its blanket participation agreement for the guarantee of bank loans, as of Jan. 22, 1947. They continued to guarantee up to 75 per cent of total loans of $100,000 or less, upon specific application for each loan.

Authority for the Federal Reserve banks to guarantee loans to business was sought by the Board, on the premise that banks were not taking care of the credit requirements of business. At the same time the Board requested additional powers to restrain the further expansion of bank credit. The authority requested was not granted by the Congress.

The Federal Housing Administration received authority to increase the amount of 90 per cent loans on new houses outstanding under Title VI of the National Housing Act, by $750,000,000. The program of guarantees of housing loans of all types, especially the type of loans referred to above, and the 100 per cent loans under the Veterans Administration program, has been severely criticized by the Chairman of the Board of Governors of the Federal Reserve System. Organized banking has strongly opposed government guarantees of any type of loans.

RATION BANKING

The ration banking program, in operation since January 1943, was terminated effective July 1, 1947. Banks opened accounts in and received deposits of ration coupons and certificates. Ration depositors drew ration checks in favor of suppliers of rationed goods. The end of rationing made these accounts unnecessary.

CONSUMER INSTALLMENT CREDIT

Installment credit controls exercised by the Board of Governors of the Federal Reserve System under Regulation W lapsed at the end of October, in accordance with a directive from the Congress, approved Aug. 8, 1947. The installment terms in general required down payments of one-third of the purchase price and maturities of not more than 15 months.

Upon expiration of the regulation, the American Bankers Association suggested to lenders that terms be limited to 33⅓ per cent down and 24 months on new automobiles; 25 per cent down with 18 monthly payments on radios and television sets; and 20 per cent down and 36 months to pay on refrigerators, ranges, washing machines, etc. Nearly all banks adhered to these terms.

During November and December, the Federal Reserve authorities attempted to obtain permanent statutory authority to reimpose Regulation W, but bills introduced into the Congress for that purpose were not enacted.

MARGIN REQUIREMENTS FOR PURCHASING SECURITIES

Effective Feb. 1, 1947, margin requirements for purchasing registered securities, were reduced to 75 per cent, applicable to purchases and to short sales. These transactions had been on a cash basis since Jan. 21, 1946. The amount of loans outstanding, for the purpose of purchasing and carrying both registered securities and United States Government securities, was very small throughout 1947.

DEPOSIT INSURANCE

Assets of the Federal Deposit Insurance Corporation—almost entirely in the form of cash and United States Government securities—at the beginning of 1947 were well in excess of $1,000,000,000. Assessments on insured banks in 1947 exceeded $100,000,000, making a total contribution by the banks of $750,000,000. About $200,000,000 was received from interest in investments held by the corporation during the years since organization in late 1933. During the entire period 1933-1947, deposit insurance losses and administrative expenses combined were less than $100,000,000. More than half of this was for administrative expenses. The original capital of the Corporation consisted of $139,299,557, contributed by the 12 Federal Reserve banks and $150,000,000 of United States Treasury funds.

Early in 1947, the American Bankers Association expressed the opinion that a deposit insurance reserve of $1,000,000,000 was large enough to meet any prospective need for funds, and advocated that assessment and other income received should be used to retire the capital contributions of the Treasury and Federal Reserve banks. Legislation authorizing the corporation to pay into the Treasury sums available without decreasing capital and surplus below $1,000,000,000 was approved Aug. 5, 1947, and, on Sept. 9, the corporation paid to the Treasury $146,695,250. This retired all capital stock held by the Federal Reserve banks, and retired part of the Treasury investment, a step toward making the fund a mutual insurance pool for banks, under government management. The new legislation authorized the corporation to borrow not to exceed $3,000,000,000 from the Treasury, if required for insurance purposes, and increased the salary of the directors of the corporation.

The Federal Reserve banks had replaced their subscription to stock of the Federal Deposit Insurance Corporation by earnings in years subsequent to 1933, when they were relieved of the obligation to pay a franchise tax. On April 24, the Board of Governors announced that it had levied a tax on the notes of the 12 Federal Reserve banks not collateraled by gold certificates, at such rate as to absorb 90 per cent of the net earnings after dividends of each Federal Reserve bank in 1947.

COOPERATIVE ACTION TO RESTRAIN EXPANSION OF CREDIT

Throughout 1947, banks were kept informed by the American Bankers Association of the rising trends in prices of farm land and urban real estate. Banks were advised to scrutinize loans in these classes with care.

On Nov. 25, the Board of Governors of the Federal Reserve System, the Comptroller of the Currency, the Federal Deposit Insurance Corporation, and the Executive Committee of the National Association of Supervisors of State Banks joined in a statement to bankers that "present conditions require the bankers of the country to exercise extreme caution in their lending policies. It is at times such as these that bad loans are made and future losses become inevitable."

In December, the American Bankers Association inaugurated a series of meetings on a nationwide basis, stressing the following principles:

That in the months immediately ahead, commodity and inventory loans which are designed to withhold essential goods from the normal market channels in anticipation of price rises should not be made.

That mortgage loans for non-essential building or for construction which can be postponed until building supplies and labor are in greater abundance should be discouraged.

That banks should give priority to loans to those borrowers who can turn out the supplies and services needed at home and abroad *now,* in order that the machinery for the production of essential goods may be kept functioning at maximum levels.

That there should be a greatly intensified drive to sell Treasury Savings Bonds to the public and to promote other forms of savings, such as savings accounts in banks, as a means of absorbing some of the surplus money in the spending stream which would otherwise continue to compete for the goods and services in short supply.

SPECIAL RESERVE PLAN

The Board of Governors of the Federal Reserve System, in late November, requested authority from the Congress for the Open Market Committee of the System to impose, for a period of three years, on all banks that receive demand deposits, a special reserve in addition to cash reserves now required by Federal or state bank laws.

This additional reserve could amount to as much as 25 per cent of gross demand deposits and 10 per cent of time deposits, in addition to present cash reserves of 6 per cent against all time deposits, and 20 per cent against net demand deposits of city banks, and 14 per cent for country banks. The special reserve could consist of obligations of the United States in the form of Treasury bills, certificates, and notes with original maturities of two years or less. It also could include coin and currency in vault, cash items in the process of collection, balances due from banks in excess of balances due to banks in the United States, and deposits with Federal Reserve banks, to the extent that the aggregate of these items exceeded 20 per cent of gross demand deposits.

If the maximum special reserve percentages of 25 per cent of gross demand deposits and 10 per cent of time deposits were imposed, banks as a group would have to sell long-term securities and buy short-term obligations from the Federal Reserve banks. Some banks would have to call loans and buy securities. As a result, banks would be less free to expand deposits by making loans and purchasing investments, since a substantial part of their government security holdings would be frozen as a required reserve. Banks that served their communities best by making loans, would be penalized most. Another effect would be that the market and rates for short-term United States Government securities would be divorced from the market for private loans and investments. Rates on short-term United States Government obligations could then be reduced to any level, even to zero. This could result in the ultimate freezing of the Federal debt (and any existing inflation of credit) into the banking system on an interest-free basis.

It is a most unwise policy to limit the possible expansion of production and distribution where financial assistance is needed. The supply of goods and services is thereby curtailed. The problem for an economically mature section of the United States is very different from that of an expanding economy. Imposing rigid rules is dangerous. It tends to stifle progress. The prospect of substitution of bureaucratic rules in place of the judgments of boards of directors of 14,500 banks in thousands of communities in the United States is alarming, to say

SUMMARY OF ASSETS AND LIABILITIES OF OPERATING BANKS IN THE UNITED STATES AND POSSESSIONS, JUNE 30, 1947

(In thousands of dollars)

	All Banks	Commercial and Stock Savings Banks	Mutual Savings Banks	Nondeposit Trust Companies
ASSETS				
Cash, balances with other banks, and cash items in process of collection—total	33,716,747	32,823,370	839,305	54,072
Currency and coin	1,986,836	1,903,522	82,882	432
Reserve with Federal Reserve banks	16,039,194	16,039,091	..	103
Demand balances with banks in the United States (except private banks and American branches of foreign banks)	9,592,498	8,832,381	719,182	40,935
Other balances with banks in the United States	65,508	61,729	..	3,779
Balances with banks in foreign countries	41,817	41,817	..	..
Cash items in process of collection	5,865,091	5,847,817	16,624	650
Not classified	125,803	97,013	20,617	8,173
Securities—total	93,200,729	79,420,399	13,653,357	126,973
United States Government obligations, direct and guaranteed	83,116,152	70,875,922	12,140,327	99,903
Obligations of states and political subdivisions	5,040,490	4,971,090	64,524	4,876
Other bonds, notes, and debentures	4,527,658	3,228,942	1,295,432	3,284
Corporate stocks	503,162	335,529	153,074	14,559
Not classified	13,267	8,916	..	4,351
Loans, discounts, and overdrafts (including rediscounts)—total	38,578,709	33,871,315	4,685,802	21,592
Commercial and industrial loans (including open market paper)	15,000,872	14,972,987	24,080	3,805
Loans to farmers directly guaranteed by the Commodity Credit Corporation	22,317	22,317	..	..
Other loans to farmers (excluding loans on real estate)	1,581,988	1,581,402	568	18
Loans to brokers and dealers in securities	1,523,314	1,523,314	..	..
Other loans for the purpose of purchasing or carrying securities	1,317,132	1,316,530	553	49
Real estate loans:				
On farm land	802,285	782,232	19,776	277
On residential properties	8,758,056	5,973,967	2,774,092	9,997
On other properties	2,126,840	1,528,880	596,343	1,617
Not classified	1,262,125	49,265	1,212,116	744
Other loans to individuals	4,956,493	4,939,791	16,482	220
Loans to banks	101,150	101,150	..	..
All other loans (including overdrafts)	1,002,599	984,600	14,868	3,131
Not classified	123,538	94,880	26,924	1,734
Miscellaneous assets—total	1,752,214	1,551,360	183,245	17,609
Bank premises owned, furniture and fixtures	1,034,358	932,543	92,659	9,156
Real estate owned other than bank premises	34,476	22,871	10,339	1,266
Investments and other assets indirectly representing bank premises or other real estate	69,630	65,616	3,752	262
Customers' liability to this bank on acceptances outstanding	111,783	111,783	..	..
Other assets	501,967	418,547	76,495	6,925
Total Assets	167,248,399	147,666,444	19,361,709	220,246

	All Banks	Commercial and Stock Savings Banks	Mutual Savings Banks	Nondeposit Trust Companies
LIABILITIES				
Deposits—total	154,191,122	136,675,483	17,441,966	73,673
Demand deposits of individuals, partnerships, and corporations	79,694,722	79,611,498	11,129	72,095[1]
Time deposits of individuals, partnerships, and corporations	51,631,400	34,207,664	17,423,682	54
States and political subdivisions	7,519,756	7,516,417	1,880	1,459
United States Government	1,427,589	1,425,350	2,182	57
Interbank	11,690,112	11,689,472	640	..
Certified and officers' checks, cash letters of credit, etc.	2,149,076	2,146,615	2,453	8
Not classified	78,467	78,467	..	..
Miscellaneous liabilities—total	1,287,045	1,170,360	78,105	38,580
Bills payable, rediscounts, and other liabilities for borrowed money	63,339	62,292	84	936
Mortgages or other liens	650	538	112	..
Acceptances executed by or for account of this bank and outstanding	126,821	126,821	..	..
Other liabilities	1,096,235	980,709	77,909	37,617
CAPITAL ACCOUNTS				
Capital accounts—total	11,770,232	9,820,601	1,841,638	107,993
Capital stock, notes, and debentures	3,319,580	3,269,959	4,495	45,126
Surplus	5,563,885	4,277,380	1,248,968	37,537
Undivided profits	2,229,651	1,689,062	522,631	17,958
Reserves and retirement account for preferred capital	657,116	584,200	65,544	7,372
Total Liabilities and Capital Accounts	167,248,399	147,666,444	19,361,709	220,246
Number of Banks	14,767[2]	14,157[2]	533	77

[1] Uninvested trust funds.
[2] Includes 12 banks for which asset and liability data are not available.

the least. Local bankers know the needs of their communities and of their borrowers. They know the ability of debtors to repay.

The special reserve requirement would extend Federal control over bank reserves (and the composition of bank assets) to state-chartered banks that receive demand deposits but are not members of the Federal Reserve System. It would be applied to uninsured banks, as well as banks whose deposits are insured by the Federal Deposit Insurance Corporation. This would be the first serious encroachment upon the dual system of banking in the United States.

AMERICAN BANKERS ASSOCIATION

The American Bankers Association held its 1947 convention in Atlantic City, N. J., in late September and early October. Much attention was given to the international situation. Officers of the Association elected for the year 1947-48 were: President, Joseph M. Dodge, president, The Detroit Bank, Detroit, Mich.; Vice-president, Evans Woollen, Jr., president, Fletcher Trust Company, Indianapolis, Ind.; Treasurer, Frank P. Powers, president, Kanabec State Bank, Mora, Minn.; and Executive Manager, Harold Stonier, New York.

TRUST BUSINESS

By GILBERT T. STEPHENSON

THE GRADUATE SCHOOL OF BANKING, AMERICAN BANKERS ASSOCIATION

TRUST DIVISION, AMERICAN BANKERS ASSOCIATION

The 1947-1948 organization of the Trust Division of the American Bankers Association is as follows: President, R. M. Alton, vice president in charge of trust department, United States National Bank, Portland, Ore.; Vice President, H. M. Bardt, vice president and trust officer, Bank of America N.T. & S.A., San Francisco, Calif.; Chairman of the Executive Committee, John W. Remington, vice president and trust officer, Lincoln Rochester Trust Company, Rochester, N. Y.; Secretary, Merle E. Selecman, deputy manager, American Bankers Association; Members of the Executive Committee: James W. Allison, vice president, Equitable Trust Company, Wilmington, Del.; Evans Woollen Jr., president, Fletcher Trust Company, Indianapolis, Ind.; John H. Evans, president, McDowell National Bank, Sharon, Pa.; N. Baxter Maddox, vice president and trust officer, The First National Bank, Atlanta, Ga.; Leo A. Steinhardt, president, International Trust Company, Denver, Col.; B. Magruder Wingfield, vice president, The National Bank of Commerce, Houston, Tex.; Clarence R. Chaney, vice chairman of the board, Northwestern National Bank, Minneapolis, Minn.; Edwin W. Marvin, vice president, The Hartford-Connecticut Trust Company, Hartford, Conn.; L. L. McArthur Jr., vice president, The Northern Trust Company, Chicago, Ill.; James M. Trenary, vice president and secretary, United States Trust Company of New York; Raymond H. Trott, president, Rhode Island Hospital Trust Company, Providence, R. I.; Richard P. Chapman, vice president, Merchants National Bank, Boston, Mass.; Thoburn Mills, vice president, National City Bank, Cleveland, O.; Frank H. Schmidt, executive vice president, California Trust Company, Los Angeles, Calif.; W. J. Thomas, vice president, Detroit Trust Company, Detroit, Mich.; Joseph W. White, vice president, Mercantile-Commerce Bank and Trust Co., St. Louis, Mo.

TRUST CONFERENCES

During 1947, one nationwide and two regional trust conferences were conducted, as follows: annual Mid-Winter Trust Conference in New York, Feb. 3-5; the Pacific Coast and Rocky Mountain States Regional Trust Conference in San Francisco, Oct. 22-24; and the Mid-Continent Trust Conference in Chicago, Nov. 6-7.

TRUST DIVISION ANNIVERSARY

In February 1947, in connection with the Mid-Winter Trust Conference, the Trust Division celebrated its fiftieth anniversary. Organized in St. Louis in 1896, it had its first annual meeting in Detroit in 1897. In celebration of this anniversary, Evens Woollen Jr., President of the Division, spoke on "The Trustman's Environment—Fifty Years Ago and Now"; Gilbert T. Stephenson, Director, Trust Research Department, The Graduate School of Banking, on "Fifty Years of Trust Business"; Austin W. Scott, Professor of Law, Law School of Harvard University, on "Fifty Years of Trust Law"; and William A. Irwin, Economist, American Bankers Association, on "Fifty Years of Economic Change."

TRUST LEGISLATION

Because in most states the legislatures were in session during 1947, the year was marked by the adoption of a large volume of trust legislation.

Common trust fund enabling acts

were adopted in Arkansas, California, Colorado, and Texas, making a total of 31 states with such acts.

The prudent-man rule for trust investment was adopted in Nevada, Oregon, and Washington, making a total of 20 states now operating under this rule either by statute or by judicial decision.

Nominee registration statutes, permitting corporate fiduciaries to register securities in the name of a nominee, were adopted in Arkansas, Connecticut, Indiana, Nebraska, and Washington, making a total of 26 states which have adopted this legislation.

Section 3 of the Uniform Fiduciaries Act was amended in Arkansas, California, Indiana, Maine, and Washington. By this amendment, nominee registration into as well as out of the name of the fiduciary is permitted; whereas, heretofore, only nominee registration out of the name of the fiduciary was permissible without imposing upon the fiduciary the duty of supervising the transfer. This amendment should greatly facilitate the transfer of listed securities in estates and trusts.

The Uniform Acts on Intestate Arbitration and on Compromise of Death Taxes where Domicile is in Dispute were adopted in Connecticut and Vermont, making a total of three states having the act on arbitration and 14 on compromise.

The Uniform Simultaneous Death Act was adopted in Kansas, Missouri, Nebraska, North Carolina, Oregon, and Rhode Island, making a total of 32 states with this act.

The Uniform Veterans Guardianship Act (1942 revision) was adopted in Rhode Island, making a total of 14 states with this act.

The Release of Powers of Appointment Act was adopted in Delaware and Oregon, bringing the total of states with this act up to 23.

The Uniform Stock Transfer Act was adopted in Iowa, Kansas, and Vermont. This completes the adoption of this act by every state.

Acts referred to as Uniform Acts are those which have been approved by the National Conference of Commissioners on Uniform State Laws.

COMMON TRUST FUNDS

As pointed out above, common trust funds enabling acts or decisions now exist in 31 states, four of which were added in 1947, but what is of more practical importance, at the end of the year there were 56 common trust funds in operation in 19 states and, in addition to these, there were eight commingled funds, designed to serve a purpose similar to that of common trust funds, in five states.

A complete list of the common trust funds, together with the year of establishment of the funds, is as follows:

Alabama: The First National Bank of Birmingham (1947); The First National Bank of Montgomery (1946).

California: Bank of America N.T. & S.A. (1947).

Connecticut: The First National Bank and Trust Company, Bridgeport (2 funds, 1943 and 1945); The First National Bank and Trust Company of New Haven (1946); Phoenix State Bank and Trust Company, Hartford (1946).

Delaware: Equitable Trust Company, Wilmington (2 funds, 1930 and 1934); Security Trust Company, Wilmington (1941); Wilmington Trust Company, Wilmington (1941).

Illinois: City National Bank and Trust Company of Chicago (1947).

Georgia: The Trust Company of Georgia, Atlanta (1943).

Maryland: Equitable Trust Company, Baltimore (1945); Safe Deposit and Trust Company, Baltimore (1945).

Massachusetts: Boston Safe Deposit and Trust Company, Boston (1945); The First National Bank of Boston (Fund A, 1947); Old Colony Trust Company, Boston (1945).

Minnesota: First Trust Company of St. Paul (2 funds, 1933 and 1937); Northwestern National Bank of Minneapolis (1946).

Missouri: Mississippi Valley Trust Company, St. Louis (1942); St. Louis Union Trust Company, St. Louis (2 funds, 1941 and 1941); Security National Bank Savings and Trust Company, St. Louis (1939).

New Jersey: Burlington County Trust Company, Moorestown (1945); Trenton Banking Company, Trenton (1945).

New York: Bank of New York, New York (1945); Central Hanover Bank and Trust Company, New York (1945); Continental Bank and Trust Company, New York (2 funds, 1944 and 1944); Marine Midland Trust Company, New York (1944); Security Trust Company, Rochester (1945).

North Carolina: Wachovia Bank and Trust Company, Winston-Salem (1941).

Ohio: Central Trust Company, Cincinnati (1945); Cleveland Trust Company, Cleveland (1945).

Pennsylvania: Union Trust Company, Butler ($1,200 fund, 1941); Norristown-Penn Trust Company, Norristown ($1,200 fund, 1939); Fidelity-Philadelphia Trust Company, Philadelphia (1940); Girard Trust Company, Philadelphia (2 funds, 1939 and 1939); Land Title Bank and Trust Company, Philadelphia (1942); The Pennsylvania Company for Banking and Trusts (2 funds, 1940 and 1940), Philadelphia; Provident Trust Company, Philadelphia (1940); Real Estate Trust Company, Philadelphia (1947); Tradesmen's National Bank and Trust Company, Philadelphia (1945); Mellon National Bank and Trust Company, Pittsburgh (2 funds, 1 a $1,200 fund; 1944); Peoples First National Bank and Trust Company, Pittsburgh (1940); Scranton-Lackawanna Trust Company, Scranton (2 funds, 1940 and 1946).

Virginia: National Bank of Commerce, Norfolk (1947).

Washington: National Bank of Commerce, Seattle (1947).

West Virginia: Flat Top National Bank, Bluefield ($1,200 fund, 1939).

Wisconsin: Marine National Exchange Bank, Milwaukee (1944).

In addition to these there are commingled funds which, though technically not common trust funds, serve the same general purpose, as follows:

California: First National Trust and Savings Bank, San Diego (1942).

Delaware: Equitable Trust Company, Wilmington (1930).

Michigan: Ann Arbor Trust Company, Ann Arbor (1933).

New York: Brooklyn Trust Company, New York (1929); City Bank Farmers Trust Company, New York (1930).

Vermont: Montpelier Savings Bank and Trust Company, Montpelier (1935); Proctor Trust Company, Proctor (1932); Waterbury Savings Bank and Trust Company, Waterbury (1941).

SIGNIFICANCE OF THE COMMON TRUST FUND

From the point of view of the general public and particularly of the creators and beneficiaries of trusts, the practical significance of the common trust fund is that it enables the beneficiaries of small trusts which participate in the fund to enjoy all the advantages of diversification and of administrative economies that the beneficiaries of a large trust enjoy. In a word, the common trust fund makes trust service available to persons of modest means and their beneficiaries and thereby greatly enlarges the range of service of corporate fiduciaries.

FOREIGN EXCHANGE

By Marcus Nadler
Graduate School of Business Administration, New York University

REVALUATION OF CURRENCIES

The year 1947 was marked by the revaluation of the currencies of several countries, notably Italy, Rumania, and the Soviet Union. Foreign exchange control remained in effect in most countries while the stability of exchanges that prevailed was frequently more nominal than real since fluctuations in the black markets were considerable. On Nov. 27, 1947 the Italian lira was officially depreciated from 350 lire to 589 lire to the dollar. A much more drastic currency reform was carried out in Rumania.

On Aug. 15, 1947, Rumania decreed an exchange of the leu into a new leu at the rate of 20,000 old lei = 1 new leu. The external rate of the new leu was fixed at 150 lei = $1.00. The amount of currency to be exchanged was limited, however, according to the occupation of the owner, ranging from 1,500,000 old lei for persons classified as without profession to 3,000,000 old lei for public and private employees and between 5,000,000 and 7,000,000 for heads of agricultural families. Currency and bank balances over the amounts subject to exchange were blocked in non-interest-bearing accounts.

Toward the end of the year the Russian Government also carried out a currency reform. New currency was created and the old ruble was converted into the new one at the rate of 10 to 1. More favorable rates (ranging from 1 for 1 to 1 for 5) were given to holders of savings deposits and government bonds.

CURRENCIES AND THE MARSHALL PLAN

Expected currency reforms in other countries did not take place. This was owing partly to the unsettled political conditions prevailing throughout the world, but primarily to the belief that the Marshall Plan would be adopted by the United States Congress and that, with American aid, currency stabilization would be easier to effect. In fact, one of the prerequisites of the Marshall Plan is the stabilization of European currencies. It has been widely realized that so long as the supply of money and deposits in most countries of Europe is far greater than the supply of commodities available for sale, there will be little incentive to work, and no real rehabilitation of the economies can take place. It may therefore be expected that, with the adoption of the Marshall Plan, major currency reforms will be carried out in many parts of western Europe.

GOLD MOVEMENTS

Throughout 1947 the United States witnessed a considerable inflow of the yellow metal. During the first 11 months of 1947, imports of gold to the United States, together with gold released from earmark, amounted to $2,700,000,000. This huge movement of gold to this country is not surprising. It is primarily the result of the great shortage of dollars which prevails throughout the world. The scarcity of dollars, in turn, reflects the acute shortage of commodities all over the world and the fact that the United States is the only major country in a position to supply agricultural as well as manufactured goods. Toward the end of the year the Canadian Government was working on plans to increase the output of gold by granting subsidies to the gold mines. At the same time, the United States was contemplating measures to sterilize the inflow of gold and to prevent it from creating new reserve balances as well as new deposits. The fact that some countries are paying subsidies to increase the output of gold while the United States Government is forced to take measures to sterilize gold is perhaps the best indication of the unstable international financial situation prevailing throughout the world.

INFLATION ABROAD

Despite the fact that currencies in many countries nominally remained stable, the process of inflation continued unabated in most countries of the world. Commodity prices are rising and are kept down only by price controls and rationing still in force in many parts of the world, especially Europe. The acceleration of inflation is only partly owing to the shortage of goods. To a large extent, it is due also to the over-supply of money caused in part by the deficits of the governments. In order to meet their expenditures, ordinary as well as extraordinary, many governments throughout the world are forced to have recourse to the central banks, thus leading to an increase in the volume of currency in circulation as well as to an expansion of bank deposits. In some countries, such as China, this situation has reached a point where the currency has practically lost its value as an international currency and as a medium of exchange at home. It is quite evident that a stabilization of such currencies can not take place until budgets are balanced and measures have been taken by the respective governments to reduce materially the great supply of the means of payment.

Serious inflationary conditions also exist in the occupied countries. In Germany, where, although nominally the purchasing power of the reichsmark has remained practically unchanged as far as rationed commodities are concerned, the currency unit of the Reich has lost its value as a means of payment or as a medium of exchange. Commodity prices in the black market are much higher than those on rationed commodities, and most transactions are carried out through barter. Similar conditions prevail in Japan and in Korea.

THE 1948 OUTLOOK FOR CURRENCY REFORM

In all probability the year 1948 will be a decisive one in currency reform throughout the world. While it is not as yet clear what form the Marshall Plan will ultimately assume, it is already evident that some type of assistance will be granted by the United States to the western European countries. This, in turn, is bound to be accompanied by important currency reforms designed to restore confidence in the currencies of these countries at home and to give them a sound international position. The principal country where drastic currency reform may be carried out is France.

These reforms will entail not merely the balancing of budgets but also a sharp reduction in the amount of currency in circulation and in bank deposits as well as an increase in production and exports. The reforms will be materially aided by the assistance to be extended by the United States which, on the one hand, will reduce the dollar shortage and, on the other, will place substantial sums in local currency at the disposal of each individual government. It is expected that the commodities which will be shipped by the United States to the various countries receiving aid under the Marshall Plan will be sold by the governments to the population for local currency. These currencies will be set aside and earmarked for the account of either the respective government or the United States Government. This measure is bound to lead to a reduction in the volume of currency in circulation.

Whether the adoption of the Marshall Plan will lead to the termination of the inflow of gold to the United States is highly doubtful. It may, however, bring to a halt the exportation of gold at present held by governments and central banks as part of their monetary reserves. It certainly should not bring to an end the inflow of newly mined gold, primarily because no other nation in the world is rich enough under present conditions to buy this gold. What the world at large wants and needs is not the yellow metal but commodities with which to feed the populations and to restore their economies.

THE POUND STERLING

The most serious problems in the field of international exchange are those relating to the pound sterling and to the Canadian dollar. The fact that Bank of England notes are selling at between $2.50 and $3.00 has often been interpreted to mean that the pound is greatly overvalued at the official rate of $4.03 and that a downward readjustment is bound to take place in the not distant future. The discount on pound-sterling notes is owing primarily to the fact that the export and import of this currency are restricted by law and that individuals may bring into the country and take out only five pounds. The rate is no indication of the actual purchasing power of the pound sterling nor does it reflect any future actions that may be taken by the British Government. Whether the pound sterling is overvalued or undervalued is impossible to state because conditions in Great Britain are entirely different from those prevailing in the United States. Subsidies still play an important role in Great Britain, and price control and rationing embrace a large volume of commodities.

An analysis of conditions in Great Britain leads to the conclusion that no change in the sterling rate is likely to take place in the immediate future. Fiscal conditions in Great Britain, on the whole, are sound. The budget is balanced, and the creation of new deposits through Treasury borrowing has come to an end. Foreign exchange restrictions are likely to remain in force for an indefinite period, giving the government almost complete control over the types and quantities of commodities to be imported. A decline in the international value of the pound would not increase exports from Great Britain since the failure to develop exports more rapidly is not due to the fact that British commodities can not compete in the world markets but rather to the shortage of commodities available for export. Depreciation of the pound would not, therefore, lead to an increase in exports which, in the existing sellers' market, are limited by production rather than by the price structure. Second, since Great Britain must import in large quantities from outside the sterling area many indispensable commodities, notably raw materials and foodstuffs, devaluation of the pound would result in an increase in prices of these commodities expressed in terms of the pound sterling. This would automatically lead to an increase in the cost of living followed by demands for higher wages, thus setting in motion the spiral between prices and wages. Within a relatively short time, therefore, the advantages, if any, that might be gained from a devaluation of the pound would be lost. It is, consequently, not to the interest of the British economy to decrease the international value of the pound.

Third, any change in the international value of the pound sterling would be bound to have far-reaching repercussions in the entire sterling area. The currencies of the member countries have remained stable in relation to the pound. A readjustment in the pound, therefore, could not be made without first taking into account its effects on the members of the sterling area. The sterling bloc has performed a very useful function in permitting the free conversion of the various currencies into one another and into the pound sterling, thus facilitating trade and capital movements among the member countries. Devaluation would affect adversely the sterling-area members holding large sterling balances in London. Finally, a further devaluation of the pound would deal a serious blow to the prestige of London as an international financial center.

A devaluation of the pound sterling might be expected only under the following conditions:

1. A decrease in prices of food and

raw materials not accompanied by a corresponding decline in prices of manufactured goods. In that case, a devaluation of the pound sterling would stimulate exports of British commodities to countries whose national income was reduced as a result of the decline in prices of raw materials and foodstuffs. If the pound sterling were to remain unchanged under those conditions, it would become more difficult for agricultural and raw materials producing countries to buy in Great Britain. Since the British economy depends to a large extent on exports, this obviously would not be to the interest of Great Britain.

2. Devaluation would be feasible if, in the future when the sellers' market is replaced by a buyers' market, British industry should find it difficult to compete with the more efficient industries of the United States. Under those circumstances a devaluation of the pound, if not accompanied by an increase in wages and prices in Great Britain, would render British commodities more competitive in the world's markets.

3. Finally, the future movement of the pound sterling will depend to a large extent upon the movement of commodity prices in the United States. If prices in this country remain high and even continue to go higher, then the pound sterling may be undervalued and certainly no further devaluation will be needed. If, on the other hand, prices in the United States should decrease materially, then a change in the international value of the pound might be made for competitive reasons.

THE CANADIAN DOLLAR

The fact that the free rate of the Canadian dollar is quoted at a discount of between 9 and 10 per cent below the official rate has led to the belief that a devaluation of the Canadian dollar is imminent. This does not necessarily follow.

It should be noted that Canada has only one exchange rate applying to Canadian residents, namely, the official rate, which is at par with the American dollar. The free rate operates only abroad, primarily in the United States, and can be used only under the conditions indicated below.

1. Transactions in the free market are invariably between non-residents of Canada. Residents of Canada may not purchase or sell foreign exchange in the unofficial market.

2. Under Canadian foreign-exchange regulations, United States dollars and other foreign exchange are made available to residents of Canada at official rates out of official Canadian reserves to meet payments on all current account transactions with non-residents, such as payment for imports and services, including interest and dividends. In addition, certain capital payments may also be made by residents of Canada to non-residents in United States dollars or other foreign exchange at official rates to pay off maturing debts, including bond issues payable in United States funds or other foreign currencies.

3. Residents of Canada are required to obtain foreign exchange for exports and sell such funds to a bank in Canada or otherwise account for them to the Foreign Exchange Control Board, except for occasional exports involving not more than $100 in Canadian funds. Similarly, United States dollars and foreign exchange received for services, except professional services and services rendered to tourists, must be sold at official rates to a bank in Canada. Income on and proceeds from sale of foreign securities must also be accounted for to the Foreign Exchange Control Board.

4. The foreign exchange regulations permit capital payments to non-residents in Canadian dollars which may not be converted into foreign funds. The supply of "inconvertible" Canadian dollars consists basically of bank balances held by non-residents of Canada when foreign exchange control was instituted in September 1939. These balances can be transferred freely between one non-resident and another in the unofficial market.

Other supplies of inconvertible Canadian dollars are derived mostly from sales by non-residents (Americans) of various types of capital assets in Canada. For example, Americans have bought Canadian securities for cash since 1940 and registered such purchases at the time of purchase with the Foreign Exchange Control Board. Holders of these securities are authorized to sell them in Canada and to transfer the proceeds in Canadian dollar funds to other Americans. Similarly, Americans have been authorized to sell real estate and receive the proceeds in inconvertible Canadian dollars. Finally, proceeds from maturing securities payable solely in Canadian dollars may be transferred to non-residents in inconvertible funds.

5. The demand for inconvertible Canadian funds arises when foreigners, mostly Americans, wish to buy Canadian securities or real estate, or make loans or investments in Canada, or travel in Canada.

Since the inconvertible Canadian dollar funds may be used only for limited purposes, they sell at a discount which represents the inducement offered by one non-resident to another to take over a capital investment in Canada which can not be converted into United States funds through official channels at the official rate. The volume of transactions in this market is rather small when contrasted with the total amount of Canada's international transactions. Thus, the exchange value of inconvertible Canadian funds is determined in a narrow and highly specialized market, and, therefore, the prevailing discount can not be taken as an indication that the official rate will be reduced.

Another reason often advanced for the possibility that the Canadian dollar may soon be devalued is the fact that Canada is encountering a serious shortage of United States dollars. During the first seven months of 1947, merchandise exports from Canada to the United States amounted to $564,300,000, whereas imports from this country amounted to $1,151,300,000, thus leaving a trade deficit of $587,000,000. In contrast, the total foreign trade of Canada, exclusive of gold exports and re-exports, showed for the same period an excess of exports over imports of $92,800,000. However, the largest export surplus is with Great Britain, and since the pound sterling can not be freely converted into dollars this has placed a serious exchange burden on Canada. It has been argued that a devaluation of the Canadian dollar might alleviate the dollar shortage. It can not, of course, be denied that a devaluation of the Canadian dollar in terms of American currency would make American commodities more expensive and, therefore, might curtail imports, particularly of commodities considered as unessential. Also, it would make Canadian commodities cheaper in terms of American dollars, and this in turn would lead to an increase in exports from the Dominion to the United States. Furthermore, a devaluation of the Canadian dollar would stimulate the production of gold in Canada, most of which is being sold to the United States, and thereby increase the supply of dollars. It could have no effect on the tourist trade since tourists can acquire Canadian dollars at the free rate of exchange. Should, however, a depreciation of the official rate be accompanied by a further decline in the free rate, it might stimulate the influx of American tourists, thereby increasing the supply of American dollars.

There are also negative factors, however, which must be considered by the Canadian authorities. In the first place, imports of Canada from the United States consist to a large extent of basic commodities such as cotton, fuel oil, and other raw materials which must be imported irrespective of price. Devaluation of the dollar would increase prices of these commodities in Canada, and since commodity prices in Canada, following the major decontrol order on Sept. 15, 1947, and subsequent removal of additional commodities from price control, have been arising, it is doubtful whether this would be desirable. Second, commodity prices in Canada, on the whole, are still lower than those prevailing in the United States, as may be seen from the accompanying table.

WHOLESALE PRICE AND COST OF LIVING INDEXES

	United States		Canada	
	Wholesale (1926 = 100)	Cost of Living (1935–39 = 100)	Wholesale (1926 = 100)	Cost of Living (1935–39 = 100)
August 1945	105.7	129.3	104.0	120.5
December	107.1	129.9	103.9	120.1
May 1946	111.0	131.7	109.0	122.0
August	129.1	144.1	109.3	125.6
December	140.9	153.3	112.0	127.1
May 1947	147.1	156.0	125.3	133.1
August	153.6	160.3	130.8	136.6
September*	157.4	164.0		139.4

* Preliminary figures.
Source: U. S. Department of Commerce, Survey of Current Business, various issues; Bank of Canada, Statistical Summary, various issues.

Under these circumstances, it is doubtful whether a devaluation of the Canadian dollar would lead to larger exports to the United States or would reduce imports from this country. The dollar shortage of Canada will probably be remedied through the adoption of the Marshall Plan, which will greatly reduce the dollar shortage in Europe and particularly in Great Britain. From the economic point of view, therefore, Canada has very little to gain from currency devaluation at the present time.

FOREIGN TRADE

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GENERAL

United States foreign trade, after reaching a relatively high level for a non-war year in 1946, showed an extraordinary expansion in 1947. Exports increased to a monthly average of $1,320,000,000 in the second quarter, and, although they declined from this high level in succeeding quarters of the year, the annual total reached a record value of $14,500,000,000. This was a gain of 49 per cent over the 1946 total of $9,739,000,000 and 76 per cent over 1920, which year recorded the previous high peacetime value of $8,228,000,000. It represented also a slight gain over $14,300,000,000 worth of goods exported in the high war year 1944, when lend-lease shipments comprised 80 per cent of the exports.

Imports increased to $5,500,000,000, although they also reached the highest value in the second quarter of the year and showed some decline in later quarters. The 1947 figures represented an increase of 12 per cent over the 1946 total of $4,908,000,000 and 4 per cent over the previous high value of $5,278,000,000 in 1920.

Rises in prices contributed nearly one-half of the increase in the value of exports and more than the entire increase in the value of imports from a year earlier. The year 1947 recorded the largest advance in import prices in many years, and the greatest since 1942 in export prices.

In terms of quantity, as measured by the index numbers in Table 2, which eliminate the influence of the fluctuation of price, total exports increased 25 per cent in 1947 over the total in 1946 and 157 per cent over the 1936-38 pre-war average. Imports, on the other hand, dropped nearly 5 per cent below the total in 1946 and showed only an 8 per cent gain over the average annual imports in 1936-38.

The great expansion in United States exports in 1947 resulted from large purchases by Western Hemisphere countries of the mounting supplies of manufactured articles available in the United States (in part supplied by European countries and Japan before the war), and the large amount of foodstuffs and increased supplies of materials for reconstruction secured by Europe and Asia. The volume of imports, although steadily showing an increase in value, will continue relatively small until such time as increased production in Europe and Asia makes greater amounts of goods available to other countries.

SIGNIFICANCE OF GAP BETWEEN EXPORTS AND IMPORTS

As shown by the data in Table 1, the wide gap between merchandise exports and imports was an outstanding feature of United States foreign trade in 1947. Although exports have been for many years regularly in excess of merchandise imports, and have shown balances in 1943 and 1944 as large as in 1947, the trade in these war years contained a predominant part of lend-lease supplies and those of 1946 a considerable amount of relief shipments. In 1947, merchandise purchased on "cash or credit" terms formed 95 per cent of total exports with imports balancing only two-fifths of this total.

The widened gap between exports and imports points to the economic disequilibrium still existing in world production and trade more than two years after the close of the war. While countries in the former theaters of war have made substantial headway in increasing industrial production, both Europe and Asia are still far from producing and supplying their pre-war share of world trade. Moreover, the poor harvests of 1946 greatly affected the total food supply of Europe. In contrast, the United States increased its industrial production by 87 per cent, and agricultural production, by 35 per cent in 1947 over 1935-39, and we made available a considerable proportion of this large output to foreign countries.

The United States cooperated with other countries in making notable contributions toward world recovery and an increase in international trade in 1947. The post-UNRRA aid granted, after lend-lease and UNRRA shipments ended, to Greece and other countries whose financial resources were practically exhausted, the credit extended, such as the loan to Great Britain and those of the Export-Import Bank to other countries, the sponsoring of the plan to finance a long-term recovery program for Western Europe, and the agreements reached at the Geneva Conference which aim to reduce trade barriers and increase the international exchange of goods, have contributed not only to the relief of hunger and want, but also to the rehabilitation of and the increase in output of many areas.

COMMERCIAL EXPORTS

Commercial, or cash-purchase, exports, were valued at $13,800,000,000 in 1947 as compared with $3,759,000,000 in 1945 and $7,965,000,000 in 1946. Including purchases made on both "cash and credit" terms, they formed 95 per cent of total exports, an increase from 38 per cent in 1945 and 82 per cent in 1946. The trade increased to a high monthly value of $1,352,000,000 in May but decreased thereafter to approximately $1,000,000,000 in the final months of the year.

OTHER EXPORTS

Exports of lend-lease goods and UNRRA supplies, which reached sizable figures in 1946, came to an end in 1947. The transfer of title to lend-lease goods was completed in 1946 and only relatively small amounts remained to be shipped in 1947. Of the total shipments, amounting to $22,000,000 in the period January-November, 1947 (72 per cent to USSR) more than 85 per cent had left the country before the middle of the year.[1]

Exports by the United Nations Relief and Rehabilitation Administration, which amounted to more than $1,000,000,000 worth of merchandise in 1946, declined to $386,000,000 in January-November, 1947. The United States Government terminated purchases for shipment to Europe in March 1947 and to Asia in June 1947, but goods previously arranged for and goods purchased by the Administration with "free funds" continued to be shipped to the end of the year.

There were other relief shipments made in the period January-November 1947. Greek-Turkish aid totaled $20,000,000; United States Foreign Relief, $134,000,000; and "Private Relief," $96,000,000. The last named group included shipments by the Red Cross, CARE, and other private agencies including church groups, but not the large number of non-commercial parcels sent by individuals which are not covered in foreign trade statistics. The non-commercial parcel post shipments to Europe and the Far East increased from $145,000,000 in 1946 to at least $180,000,000 in 1947.[2]

COMPOSITION OF EXPORTS

Finished manufactures, valued at $7,928,000,000, showed an extraordinary increase in January-November 1947. These articles, forming the largest of the economic groups of exports, as they regularly did for many years, accounted for 75 per cent of the increase of $4,800,000,000 shown in total exports. As a group, they formed 60 per cent of total exports compared with 49 per cent in 1936-38 and 52 per cent in 1946.

Exports of semimanufactures showed the largest percentage increase in January-November 1947 to reach $1,600,000,000 after recording a decline from wartime levels in 1945 and making only a moderate advance in 1946. The group, nevertheless, was only 12 per cent of total exports as compared with approximately 18 per cent in 1936-38.

Crude materials made only a slight gain to $1,455,000,000, after recording the outstanding increase among the economic groups in 1946, and, therefore, dropped in relative importance in the trade. These materials comprised 11 per cent of total exports as compared with 23 per cent in 1936-38 and 15 per cent in 1946.

Exports of foodstuffs advanced to a high value of $2,198,000,000 in January-November 1947, although the total quantity of food sent abroad was not as large as in January-November 1946. The increase was largely due to the advance in prices, which represented a more important factor in the rise in value of this group than any other. Foodstuffs dropped in the trade from 23 per cent in 1946 to 16.7 per cent of total exports in January-November 1947. They still showed, however, the largest percentage gain over pre-war 1936-38 average, when foodstuffs were only 10.5 per cent of United States exports.

COMMODITY EXPORTS

Among commodity exports, machinery, valued at $2,137,000,000, ranked first in importance in January-November 1947. Including industrial machinery, electrical apparatus, agricultural implements, and office machines, this group composed more than one-fourth of exports of finished manufactures. It showed an increase of 76 per cent as compared with the first 11 months of 1946, owing to expansion in sales of a wide range of commodities. Increases from a year earlier, as shown by individual items such as textile machinery radio sets, electrical appliances, air-conditioning and refrigerating equipment, and household refrigerators, ranged from 148 to 282 per cent. Exports of the large group of mining, well, and pumping machinery, after showing expansion in the war years and in 1946, increased by 95 per cent in the recent period. Moreover, construction and conveying machinery increased 144 per cent over 1946 trade, and also recorded a higher total than in any year of the war period.

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[1] All lend-lease goods sent abroad after the close of the war went out on the basis of agreements reached with recipient countries which permitted them to take, on a loan basis, goods already contracted for and in many instances, ordered to specification.

[2] Estimates based on sampling of parcel-post records by the Department of Commerce—1946 data revised; 1947 data include preliminary estimate for last quarter.

Textiles and textile manufactures, which rose to a higher value in the first half of 1947 than in all of 1946 and amounted to $1,292,000,000 in January-November, ranked as the second largest commodity export. This group made up less than 5 per cent of United States exports of manufactures, including semimanufactures in 1936-38, but after showing marked increase in the war period and further gains thereafter, particularly in 1946, composed 14 per cent of the manufactures total in January-November 1947. Cotton yarns, as well as cloth, and wearing apparel, were exported in increased quantity in the recent period.

Automobiles, including parts and accessories, which also recorded a larger total at the end of the half year than in all of the preceding year, rose to a value of $1,014,000,000 in January-November 1947, and ranked as the third largest export. Shipments included 246,000 passenger cars and 256,000 motor trucks, these totals representing increases of 29 per cent and 98 per cent, respectively, over the 1936-38 annual average exports.

Iron and steel-mill products, valued at $750,000,000, chemicals and related products at $703,000,000, merchant vessels at $590,000,000, and petroleum and products at $501,000,000, moved into fourth, fifth, sixth, and seventh places among manufactured commodities. Steel and chemicals showed marked increase in the war period, remained at high levels in 1946, and made further large gains in 1947. Sales of merchant vessels became a large item of trade only in the recent period. Petroleum products increased in value in 1947 owing mainly to price advances, after falling off sharply in 1946 from the high wartime levels.

Together, these seven commodity groups—machinery, textiles, automobiles, iron and steel, chemicals, merchant vessels, and petroleum products—comprised 74 per cent of exports of manufactures, including semimanufactures.

Wheat, including flour, was the leading foodstuff exported in January-November 1947. Although shipments increased only 18 per cent in quantity, to 324,000,000 bushels, the high price contributed to an advance of 51 per cent in value to $814,000,000. Exports of other foodstuffs—meats, fats, dairy products, eggs, and vegetables—still continued large as compared with pre-war trade, but, nevertheless, showed considerable decrease as compared with immediately preceding annual periods.

Among crude material exports, coal made the largest advance from a year earlier and ranked as the largest among commodities in this group. Amounting to nearly 65,000,000 tons, valued at $576,000,000, in January-November, they were about 60 per cent larger than in January-November 1946 during which period shipments to Europe began. Coal destined to that continent in the recent period comprised more than one-half of total coal exports.

Unmanufactured cotton, usually the leading crude material export, declined to 1,250,000,000 pounds, or by 31 per cent, as compared with January-November 1946, and 53 per cent compared with the 11-month average for 1936-38. Valued at $386,000,000, cotton ranked as second largest crude material export. Unmanufactured tobacco, the third leading item of the group, amounted to 462,000,000 pounds valued at $249,000,000. This was a decrease of 23 per cent from the relatively large quantity of tobacco exported in January-November 1946.

WORLD DISTRIBUTION—EASTERN HEMISPHERE

Europe continued a main destination of United States exports in 1947, although shipments to this area were a less dominant feature of the trade than in 1946. Including exceptionally large amounts of wheat, coal, textiles, and steel-mill products, total exports to continental Europe, excluding the USSR, increased from $2,581,000,000 in January-November 1946 to $3,559,000,000. Exports of meats, dairy products, and raw cotton declined as compared with shipments a year earlier; nevertheless, the total exports in January-November 1947 were more than five times as large in value as in 1936-38. Exports to the United Kingdom and the USSR were also a smaller part of total exports than in 1946, and exports to Europe, including these two countries, were 36 per cent of total United States exports in January-November 1947, compared with 41 per cent in 1936-38 and 42 per cent in 1946.

Exports to the United Kingdom, which showed a decline in 1946 as lend-lease shipments ceased, increased by 35 per cent to $1,057,000,000 in January-November 1947. This represented somewhat more than double the 1936-38 average annual value of this trade. Because of reductions in lend-lease and UNRRA supplies, exports to the USSR dropped off by 61 per cent to $134,000,000 in January-November 1947.

Exports to the Far East, the area including south and eastern Asia, and Oceania, increased 56 per cent from 1946 to $1,779,000,000 in January-November 1947, a total more than three times as large as the value of trade in 1936-38. These shipments represented, however, 13 per cent of total exports in the recent period, whereas the area took 19 per cent of our exports in 1936-38. The January-November 1947 trade consisted of commercial trade to the extent of 92 per cent, while UNRRA shipments, valued at $132,000,000, and "private relief," valued at $6,000,000, made up 8 per cent of the total.

Africa and the Near East, a large area of the Eastern Hemisphere with which trade has expanded from before the war, took 7.8 per cent of total exports in January-November 1947 compared with 5.4 per cent in 1936-38 and 6.4 per cent in 1946. Exports to this area have grown from $160,000,000 in 1936-38 to $619,000,000 in 1946, and $1,040,000,000 in January-November 1947.

WESTERN HEMISPHERE

The Latin American countries stood out as the area which most largely expanded its purchases of United States merchandise in 1947. The 26 per cent of total exports received by them compared with 16 per cent in 1936-38 and 21 per cent in 1946. The trade valued at $2,513,000,000 in January-November 1947 showed an increase of more than 600 per cent over pre-war average and almost 100 per cent over January-November 1946. The purchases consisted largely of manufactured articles, and for such leading commodities as chemicals and related products, industrial machinery, iron and steel-mill products, electrical apparatus, and automobiles, they comprised from 30 to 47 per cent of total U. S. exports in the first half of 1947. American purchases of these and other articles continued large in succeeding months of the year.

Exports to Canada, the largest individual market for United States merchandise, showed less expansion in 1947 than trade with the other American countries and with Africa, but a greater increase than trade with Europe and the Far East. Fourteen per cent of total exports was destined to Canada as compared with 15 per cent in both 1936-38 and 1946. Although Canada felt the impact of the world shortage of dollars and imposed restrictions on imports and foreign travel in the closing months of the year, our exports to this market for the year will exceed $2,000,000,000.

IMPORT TRENDS

Foodstuffs and semimanufactured articles in the import trade showed larger increases in 1947 than the other economic groups. The foodstuff group made up 29.3 per cent of total imports, and semimanufactures 21.9 per cent. Finished manufactures were 17.6 per cent of imports, about the same proportion as in 1946, while crude ma-

X. BUSINESS AND FINANCE

TABLE 1

UNITED STATES EXPORTS, IMPORTS, AND BALANCE OF MERCHANDISE TRADE

(Value in millions of dollars)

Yearly Average Year and Period	Merchandise					Excess of Exports (+) or Imports (−)	
	Exports[1]		Cash as Per Cent of Total	General Imports	Imports as Per Cent of Total Exports		
	Total	Cash-purchase[2]				Total	Cash-purchase[3]
1936–38	2,967	2,967	100.0	2,489	83.9	+478	+478
1939–41	4,115	3,853	93.6	2,763	67.1	+1,352	+1,090
1942–44	11,767	2,834	24.1	3,349	28.5	+8,418	−515
1941	5,147	4,369	84.9	3,345	65.0	+1,802	+1,024
1942	8,079	3,120	38.6	2,745	34.0	+5,334	+375
1943	12,964	2,549	19.7	3,381	26.1	+9,584	−832
1944	14,257	2,833	19.9	3,919	27.5	+10,340	−1,086
1945	9,803	3,759	38.3	4,136	42.2	+5,667	−377
1946	9,739	7,965	81.8	4,908	50.4	+4,831	+3,030
1947[4]	14,500	13,800	95.2	5,600	38.6	+8,900	+8,200
January–November:							
1946	8,643	6,936	80.2	4,380	50.7	+4,263	+2,556
1947	13,350	12,692	95.1	5,139	38.5	+8,211	+7,553

[1] Includes re-exports.

[2] Represents total exports excluding lend-lease, UNRRA and "Private Relief" shipments.

[3] Excess of cash-purchase exports over total imports or excess of total imports over cash-purchase exports.

[4] Preliminary; includes estimate for December.

terials comprised 31.3 per cent, a smaller share than in the preceding year.

Imports of a number of leading commodities increased in quantity in January-November 1947, particularly sugar in the foodstuff group, metals, wood-pulp, linseed oil, and tung oil, among semimanufactures, newsprint classed as "manufactures," and in the crude material group, crude rubber, copra, and non-ferrous ores. A number of principal imports declined in 1947, including unmanufactured wool, undressed furs, raw silk, and gem diamonds. The quantity and value of these and other commodities imported in 1947 appear in Table 5.

SOURCES OF IMPORTS

The American republics and Canada, which were sources of a little more than one-third before the war and nearly two-thirds during the period from 1942 through 1945, furnished 57 per cent of total United States imports in January-November

TABLE 2

INDEXES OF CHANGES IN QUANTITY, UNIT VALUE, AND VALUE OF UNITED STATES EXPORTS AND IMPORTS

Yearly Average and Year	Quantity	Unit Value	Value
Total exports of United States merchandise[1]			
1936–38	100	100	100
1939–41	135	102	138
1942–44	269	148	399
1945	197	167	328
1946	205	159	325
1947[2]	257	190	489
Imports for consumption			
1936–38	100	100	100
1939–41	104	105	109
1942–44	97	140	136
1945	107	155	166
1946	113	173	196
1947[2]	108	209	226

[1] Includes lend-lease exports from 1941 to 1947, inclusive; non-lease exports during period 1941–1946 is shown on page 413 of the 1947 issue of this publication.

[2] Preliminary; includes estimate for December.

1947. Africa and the Near East also nearly doubled the pre-war share and sent approximately 7 per cent of imports.

Imports from other leading areas increased from wartime low levels in both 1946 and 1947, but these have not yet regained the position they had in pre-war trade. The Far East supplied 19 per cent in January-November, 1947, about double the proportion in 1945, but still a far smaller share than the 31 per cent of total imports sent in 1936-38. Imports from the United Kingdom and continental Europe formed 3.6 and 9.3 per cent, respectively, of total imports in January-November 1947, both ratios representing advances from wartime lows; nevertheless, barely half as large a part as in 1936-38. Among the countries of Europe, the United Kingdom, Norway, Sweden, Netherlands, and Czechoslovakia supplied a larger value of imports in 1947 than in 1946; imports from Belgium, France, Italy, Switzerland, and other leading countries showed declines from January-November 1946.

Table 6 presents the value of United States imports from leading countries and areas in 1936-38, 1946, and January-November 1947.

TABLE 3

MERCHANDISE TRADE BY ECONOMIC CLASSES: VALUE AND PERCENTAGE DISTRIBUTION

(Value in millions of dollars)

Yearly Average or Year	Total		Crude Materials		Foodstuffs		Semimanufactures		Finished Manufactures Excluding Military		Military Equipment[1]	
	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent
Exports of United States merchandise:												
1936–38	2,925	100.0	669	22.9	306	10.5	519	17.7	1,431	48.9	—	—
1939–41	4,026	100.0	457	11.4	352	8.7	737	18.8	1,946	48.3	515	12.8
1942–44	11,669	100.0	545	4.7	1,473	12.6	1,035	8.9	3,895	33.4	4,721	40.5
1945	9,586	100.0	875	9.1	1,676	17.5	782	8.2	4,341	45.3	1,909	19.9
1946	9,502	100.0	1,416	14.9	2,172	22.9	896	9.4	5,019	52.8	—	—
January–November:												
1946	8,419	100.0	1,280	15.2	1,954	23.2	790	9.4	4,395	52.2	—	—
1947	13,181	100.0	1,455	11.0	2,198	16.7	1,600	12.1	7,928	60.1	—	—
Imports for consumption:												
1936–38	2,461	100.0	760	30.9	720	29.2	503	20.4	478	19.4	—	(x)
1939–41	2,680	100.0	1,044	39.0	622	23.2	590	22.0	424	15.8	—	(x)
1942–44	3,346	100.0	1,052	31.4	997	29.8	674	20.1	467	14.0	155	4.6
1945	4,075	100.0	1,164	28.6	1,155	28.3	928	22.6	632	15.5	196	4.8
1946	4,792	100.0	1,700	35.5	1,317	27.5	929	19.4	843	17.6	—	—
January–November:												
1946	4,301	100.0	1,538	35.8	1,178	27.4	828	19.3	758	17.6	—	—
1947	5,089	100.0	1,593	31.3	1,486	29.2	1,114	21.9	895	17.6	—	—

[1] Military exports include aircraft, military tanks, explosives, firearms, and other strictly military items; military imports include aircraft, explosives, firearms, and other strictly military items.

(x) Less than one-tenth of one per cent.

TABLE 4

UNITED STATES EXPORTS OF LEADING COMMODITIES BY ECONOMIC GROUPS

(Value in millions of dollars. Commodities in each group are listed in order of value of total trade in 1946. Group totals are shown in Table)

Commodity	Unit of Quantity	Quantity				Value			
		1936–38 Average	1946		1947	1936–38 Average	1946		1947
			Total	Jan.–Nov.	Jan.–Nov.		Total	Jan.–Nov.	Jan.–Nov.
Crude materials:									
Cotton, unmanufactured	Mil. lb.	2,880	2,006	1,822	1,254	319	538	481	386
Tobacco, unmanufactured	do	450	663	602	462	143	352	319	249
Coal	1,000 long tons	12,356	42,595	40,211	64,691	56	302	282	576
Crude petroleum	1,000 bbl.	64,898	42,574	39,032	41,823	91	74	67	88
Foodstuffs:									
Wheat, including flour	Mil. bu.	62	306	275	324	62	610	540	814
Dairy products and eggs	—	—	—	—	—	6	450	416	324
Meats and edible fats	Mil. lb.	290	1,796	1,733	717	43	434	415	214
Fruits and vegetables	—	—	—	—	—	98	297	252	263
Manufactures, including semimanufactures:									
Machinery, total[1]	—	—	—	—	—	434	1,368	1,213	2,137
Electrical apparatus	—	—	—	—	—	102	304	264	515
Industrial machinery, total	—	—	—	—	—	224	842	756	1,211
Agricultural implements	—	—	—	—	—	65	158	140	288
Tractors, new	Number	33,180	65,975	57,145	98,633	36	76	65	131
Textiles and textile manufactures[2]	—	—	—	—	—	87	732	631	1,292
Cotton cloth, duck and tire fabric	Mil. sq. yd.	252	775	675	1,367	27	223	188	494
Automobiles, including parts and accessories, total	—	—	—	—	—	286	528	457	1,014
Passenger automobiles, new	Thousand	190	117	101	246	113	123	104	309
Motor trucks and busses, new	do	129	171	147	256	76	231	198	411
Merchant vessels	Number	12	1,483	1,358	1,709	2	117	80	590
Chemicals and related products[3]	—	—	—	—	—	117	490	434	703
Iron and steel-mill products:									
Total, including scrap	1,000 long tons	5,291	4,581	4,128	5,704	199	447	396	750
Total, excluding scrap	do	2,278	4,448	4,009	5,555	149	444	393	742
Petroleum products	—	—	—	—	—	253	361	327	501
Motor fuel and gasoline	1,000 bbl.	31,176	38,311	34,976	34,509	82	106	97	125
Lubricating oils	do	9,588	10,924	9,861	12,943	74	115	103	178

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[1] Includes electrical apparatus, industrial machinery, office appliances, printing machinery and agricultural machinery and implements.
[2] Includes finished products, and yarns and other semimanufactures.
[3] Excludes explosives and phosphate rock.

TABLE 5

IMPORTS FOR CONSUMPTION OF LEADING COMMODITIES, BY ECONOMIC GROUPS

(Value in millions of dollars. Group totals are shown in table)

Commodity	Unit of Quantity	Quantity				Value			
		1936–38 Average	1946		1947	1936–38 Average	1946		1947
			Total	Jan.–Nov.	Jan.–Nov.		Total	Jan.–Nov.	Jan.–Nov.
Crude materials:									
Crude rubber	Mil. lb.	1,116	840	736	1,427	179	228	203	291
Wool, unmanufactured	Mil. lb.[1]	229	1,063	1,006	608	57	290	273	198
Oilseeds	Mil. lb.	1,908	1,268	1,064	1,491	46	53	43	122
Copra	do	472	789	602	1,184	12	30	22	93
Flaxseed	do	1,100	190	189	16	24	8	8	2
Crude petroleum	Thous. bbl.	28,772	89,210	80,788	89,976	21	102	92	143
Non-ferrous ores and concentrates[2]	—	—	—	—	—	32	116	103	138
Tobacco, unmanufactured	Mil. lb.	70	82	77	86	34	86	81	87
Undressed furs	—	—	—	—	—	65	232	207	110
Hides and skins, raw, except furs	Mil. lb.	268	217	192	147	52	78	68	74
Raw silk	Thous. lb.	57,791	13,361	10,939	2,156	99	101	84	15
Foodstuffs:									
Coffee	Mil. lb.	1,808	2,738	2,512	2,216	141	472	422	531
Cane sugar	do	6,092	5,252	4,798	7,533	152	196	179	372
Fruit, edible nuts and vegetables	—	—	—	—	—	81	195	177	171
Cocoa or cacao beans	Mil. lb.	566	595	539	527	36	57	49	124
Fish, including shellfish	Mil. lb.	346	473	444	371	31	90	83	74
Wines and spirits	—	—	—	—	—	70	85	77	59
Semimanufactures:									
Nonferrous metals, total[3]	—	—	—	—	—	146	205	180	324
Wood pulp	1,000 S. ton	2,128	1,805	1,665	2,118	86	136	123	233
Vegetable oils and fats, expressed	Mil. lb.	1,364	237	187	351	86	65	52	102
Tung oil	do	140	36	27	105	18	12	9	32
Linseed oil	do	(x)	94	63	117	(x)	17	10	34
Gas oil and fuel oil	Mil. bbl.	28	57	51	57	20	56	50	75
Diamonds, gems cut but unset	Thous. carats	432	605	566	317	23	118	114	48
Finished manufactures:									
Paper and manufactures	—	—	—	—	—	120	254	226	327
Newsprint	Mil. lb.	5,562	6,984	6,346	7,136	107	241	215	308
Burlaps	do	573	556	507	510	35	77	70	101
Clocks and watches	—	—	—	—	—	9	65	58	48
Wool manufactures	—	—	—	—	—	20	32	28	31
Flax, hemp, and ramie manufactures	—	—	—	—	—	26	30	27	22
Cotton manufactures	—	—	—	—	—	42	35	32	22

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[1] Actual weight.

[2] Including those used in manufactures of iron and steel.

[3] Including those used in manufacture of iron and steel: also a small value of finished products.

(x) Less than one-half the unit specified.

TABLE 6

TOTAL EXPORTS AND GENERAL IMPORTS, BY LEADING COUNTRIES AND AREAS: VALUE AND PERCENTAGE DISTRIBUTION

(Value in millions of dollars)

Country and Area	Value				Percentage Distribution			
	1936–38 Average	1946		1947	1936–38 Average	1946		1947
		Total	Jan.–Nov.	Jan.–Nov.		Total	Jan.–Nov.	Jan.–Nov.
Exports, including lend-lease and relief,[1] Total	2,967	9,739	8,643	13,350	100.0	100.0	100.0	100.0
Canada	454	1,442	1,289	1,929	15.3	14.8	14.9	14.4
American Republics	[2]485	2,100	1,794	3,513	16.3	21.6	20.8	26.3
United Kingdom	499	856	782	1,057	16.8	8.8	9.0	7.9
U.S.S.R.	49	358	344	134	1.7	3.7	4.0	1.0
Continental Europe[3]	678	2,851	2,581	3,559	22.9	29.3	29.9	26.7
Western countries[4]	609	2,246	2,009	3,144	20.5	23.1	23.2	23.6
Central and Eastern areas[5]	69	605	572	415	2.3	6.2	6.6	3.1
Africa and Near East	160	619	555	1,040	5.4	6.4	6.4	7.8
Far East[6]	557	1,328	1,137	1,779	18.8	13.6	13.2	13.3
All other	85	185	161	339	2.9	1.9	1.9	2.5
General Imports, Total	2,489	4,909	4,379	5,139	100.0	100.0	100.0	100.0
Canada	345	883	793	978	13.9	18.0	18.1	19.0
American Republics	[2]542	1,760	1,574	1,936	21.8	35.9	35.9	37.7
United Kingdom	174	156	142	186	7.0	3.2	3.2	3.6
U.S.S.R.	25	100	85	72	1.0	2.0	1.9	1.4
Continental Europe[3]	507	535	477	476	20.4	10.9	10.9	9.3
Western countries[4]	414	471	425	396	16.6	9.6	9.7	7.7
Central and Eastern areas[5]	92	65	52	80	3.7	1.3	1.2	1.6
Africa and Near East	97	490	445	372	3.9	10.0	10.2	7.2
Far East[6]	758	880	770	990	30.5	17.9	17.6	19.3
All other	41	105	93	129	1.6	2.1	2.1	2.5

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[1] Includes re-exports.
[2] Includes Canal Zone in 1936 and 1937.
[3] Continental Europe, excluding U.S.S.R.
[4] Includes Sweden, Norway, Denmark, Netherlands, Belgium, France, Germany, Austria, Switzerland, Spain, Portugal and Italy.
[5] Includes Czechoslovakia, Hungary, Finland, Estonia, Latvia, Lithuania, Poland, Yugoslavia, Albania, Greece, Rumania and Bulgaria.
[6] Asia other than the Near Eastern Area, and Australia and Oceania.

FOREIGN TRADE POLICIES*

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GENERAL

International trade during 1947 was marked by the apparent paradox of abnormally high imports into most foreign countries over the greater part of the year, combined with a spreading tide of new official restrictions on the importation of products regarded as not entirely essential. In many countries, these restrictions apply especially to purchases from countries where payment needs to be made in dollars.

To a considerable extent, this situation was brought on by the disappointing slowness in European economic recovery and financial stabilization, which was aggravated by the severe weather, crop failures, and work stoppages of the past year. The continued unsettled conditions in various parts of the world, and the retarded resumption of trade with Germany, Eastern Europe, and the Far East, were also contributing factors. In quite a number of countries, however, particularly in the Western Hemisphere, the exceptional volume of their imports since the war has itself been partly responsible for the restrictive reaction. The high rate at which their peoples had been buying foreign commodities of various types since the war, well beyond the value of their current exports, could hardly have continued indefinitely. The consequent drain upon the exchange resources of those countries aroused their governments' concern, and led to the adoption of stricter import controls as financial safeguards.

SPREAD OF IMPORT RESTRICTIONS

Some signs of new difficulties had appeared in a few scattered countries during the spring of 1947, but the wide resort of governments to the restriction or closer scrutiny of imports of various classes of goods considered dispensable did not assume the proportions of a general movement until about mid-year. It spread with especial rapidity after the British attempt, beginning in July, to make other countries' holdings of the sterling proceeds from current transactions again convertible into dollars. The unexpectedly heavy run on the British dollar holdings that ensued, and the forced suspension of sterling convertibility in little over a month, came as a general shock.

It brought widespread realization that the disruption of the economies and of the commercial potentialities of many countries by the war had been greater than estimated, and that the expectations of an early return to more normal conditions of international trading had been over-optimistic. In quick reaction to this realization, many governments took steps to protect their own financial positions by closer regulation of their foreign trade.

During the early months of the year, indeed, a number of governments even in Europe had felt warranted in relaxing somewhat the licensing controls over their foreign commerce which have been the rule in so many countries since the war. By the close of 1947, however, new or tightened controls upon imports had been brought into operation in the great majority of foreign countries, in both the Western and Eastern Hemispheres.

SALIENT DEVELOPMENTS IN THE DIFFERENT REGIONS

Particularly drastic were the new restrictions on the importation of goods of secondary essentiality which have come to prevail in all the countries of western and northern Europe except Switzerland, and in practically the entire British Empire except the Union of South Africa. The sharp curtailment of the further purchases of many classes of foreign products ordered by the United Kingdom, France, and Canada in the fall of 1947 were probably the most publicized, but they formed only part of a long series of such actions during the year, varying mainly in their severity. They apply especially to purchases from dollar countries.

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* For a fuller discussion of this subject, see series of articles in *Foreign Commerce Weekly* of U. S. Department of Commerce during February 1948.

Moreover, most of the European and British countries have become anxious to attain a closer balance in the annual value of their exchanges of merchandise with their various trading partners. Many of these governments have indicated their intention of favoring the importation of particular products from those sources where there would be involved least drain upon their foreign exchange, and of directing their exports more to those markets where payment can be had in "hard" currency, that is usable for purchases anywhere. To improve their over-all balance of international payments, a number of these governments are also working on various means for bringing about an increase in the volume of their countries' exports, often at the cost of restricting the quantities of certain national products made available to their own people.

Several of the Latin American Republics, which had developed extensive trade relations with the countries of Europe, especially with the United Kingdom, felt keenly this deterioration in the European commercial potentialities. For the majority of the countries of Latin America, however, the trade difficulties that developed during the year came chiefly as the result of their own heavy excess of imports over exports since the close of the war. By the latter months of 1947, all but certain of the Caribbean and Central American countries had in operation tighter controls over their imports than at the beginning of the year. Mexico and several of the South American countries have brought into effect wide increases in their import duties, partly for the protection of local producers. Chiefly, however, the new measures have taken the form of close selectivity as to which classes of foreign products were to be licensed for admission, or which were to be entitled to the means for payment promptly or at favorable rates of exchange.

In the countries of Eastern Europe, foreign trade has since the war been subject to a high degree of governmental direction, and in some cases to direct government buying and selling. During 1947, they were exceptionally active in the negotiation of agreements designed to bring about a closer orientation of their trade relations, over the long run, both toward the Soviet Union and toward each other. It was observed, however, that those Eastern European countries which had already rebuilt active commercial relations with the western countries took steps during 1947 to intensify them, and that most of the others sought to negotiate agreements with the countries of Western Europe for exchanges of the distinctive products which each was able to supply now or in the near future.

The year saw little abatement of the highly unsettled conditions in a number of important areas of the Far East, notably China and the Netherlands Indies, which have held back the full resumption of foreign trading with them. The setting up of the Dominions of India and Pakistan has thus far not altered the former system of trade regulation, although, as in the sterling areas generally, control of imports was again tightened here, and also in Burma and Malaya. The Philippine Republic continued exceptional, in its absence of import restrictions and in the return of practically all foreign trade to private channels.

A substantial beginning was made during the year toward the limited resumption of private trade with Germany and Japan, under license from the local officials, within the conditions set by the occupying military governments. Further steps are under consideration to facilitate the flow to world markets of the products for which their countries had been important sources of supply, and at the same time to increase their ability to pay for their own imports, so as to hasten the restoration of the German and Japanese economies to a self-supporting basis.

MOTIVES IN RECENT TRADE RESTRICTIONS

The recent adoption of import curbs by so many countries has seldom reflected changed attitudes by the peoples of those countries about the desirability of obtaining imported goods. Nor has it usually indicated a voluntary shift in governmental policy toward greater economic self-sufficiency. In most of the Latin American countries and several of the European neutrals, reports do indicate that the post-war satisfaction of the deferred demand for many consumer goods has been pretty well completed. In various lines of merchandise, a number of those markets are understood to be even overstocked. That condition is still very remote in most countries outside the Western Hemisphere, however, and in almost all countries the demand for equipment and materials for restoring and expanding local production and transport continues strong, often exceeding the supplies likely to become available for some time. In fact, several governments have expressed regret when announcing that some investment projects would have to be postponed or contracted because they required large outlays for imported capital goods, which they did not feel the country could now afford.

The prime motive of most governments which have recently tightened up on imports has been to readjust their countries' general buying programs to their reduced ability to pay for all the foreign goods desired, with the proceeds from current exports and with other means now available. In only a few countries, notably in Latin America, has the desire to foster local production of similar goods appeared as a primary motive in their recent restrictions upon the importation of particular foreign products. The temporary curbs on imports for conservation of exchange may have an incidental protective effect, but its importance would depend upon how long and how steadily the restrictions are kept in effect. It has been observed that the make-up of the restricted lists and of the categories of varying priority is subject to frequent change.

The size of the gap between the total imports and total exports of individual countries has varied considerably. Under the unusual postwar conditions, however, that alone has often not been the measure of a country's problem in carrying on its foreign trade. The strain upon the foreign exchange resources of many countries has been intensified by the commercial and financial difficulties of other countries with which they had important trading relations. For practically none of the war-ravaged countries has yet regained the level of production that allows a sufficient exportable surplus to pay for its current import needs. Moreover, with the notable exception of the Philippine Republic, they have not yet reached that stage of financial stability that would make their currencies freely convertible into other monies.

As a result, a country that has shipped goods to one of the war-disrupted countries to a greater value than that of the goods it has received from that country in return finds that it is holding, for that much of its exports, either an intentional credit that is not payable for some time, or a balance in a foreign currency that is not readily acceptable elsewhere. In either case, it has to that extent reduced its ability to settle for its own import balances from third countries, or to make new purchases where desired goods are obtainable.

Canada constitutes a striking instance of this character. The value of its over-all exports since the war has consistently been exceeding that of its imports. But so large a part of its shipments to European countries has been on credit, or has yielded only balances in inconvertible currencies, that the Canadian Government has had to keep drawing heavily upon its usable reserves to help pay for its traditional import balance from the United States, and finally found itself obliged, late in 1947, to resort to drastic restrictions on its imports.

It is partly to minimize strains of this character that a number of European and British countries are now trying to direct more of their exports to particular markets, which either are in a position to supply in return goods of the types particularly desired, or which can pay in dollars or other "hard" currency that is usable for purchases anywhere. Conversely, they are trying to shift the source of imports, wherever possible, either to those countries which can be paid in the same currency, as in the case of the sterling areas, or from which additional goods can be obtained against earlier export balances to them, without calling for further outlays of foreign exchange. When taking such action, the governments have often been at pains to disavow any intentional policy of discrimination against the goods or markets of particular countries, and to point to the compulsions upon them arising from the differing state of their trade balances with the various countries, and of their holdings of the other countries' currencies.

The tightened import controls of the year have usually been put forward as temporary measures to meet an emergency. However, unless bold and concerted action is taken before long to offset the lagging progress toward economic recovery and stability, especially on the part of the war-disrupted countries of Europe, the conditions which prompted the recent wide resort to new trade restrictive measures may well call for most of them to continue in operation for some time to come, even in some of the countries outside of Europe. In fact, at the opening of 1948, the governments of a number of countries were contemplating further restraints upon their imports, through increased duties, quantitative restrictions, or other means.*

DOLLAR SHORTAGE OR PRODUCTION SHORTAGE?

Since the present trade difficulties and restrictions of most countries arise mainly from financial limitations, especially in their relations with the major countries of the Western Hemisphere, the situation has been rather superficially described as one of "dollar shortage." As sometimes used, that term appears to imply a failure on the part of the supplying countries to conduct their affairs so that prospective customers have command of sufficient dollars to make the desired purchases. Actually, total importations into the United States and Canada, the two principal "dollar countries," have been running well above the pre-war rate, even when allowance is made for price rises. Significantly, however, the volumes of goods that have been obtainable from the Eastern Hemisphere countries, especially those of Europe, have been considerably below the pre-war rate.

The fundamental difficulty in the present world trade situation has arisen primarily from the serious imbalance between the different countries, following the war, in their relative productivity and financial resources. Particularly striking has been the unprecedented demand upon the productive capacity of certain countries of the Western Hemisphere, where the measure of purchasing ability is expressed in terms of dol-

* While the new import restrictions recently introduced by the various countries are cutting down the volume of new orders being placed abroad, their practical effects in curtailing the actual movements of goods are often not apparent until some months after their issue. This is due to the fact that large quantities of goods are usually en route or covered by firm prior order or import permit at the time, and that exemption or special consideration is commonly granted for such goods.

lars (U. S. or Canadian) or in currencies readily convertible into dollars (*e.g.* Cuban pesos). The so-called "dollar shortage" being complained of by many countries is thus seen rather as an indication of the insufficiency of their own production available for export, plus other means of payment, in relation to their current import needs. It is consequently the result, rather than the cause, of their inability to pay for all their desired imports from the "dollar countries," which happen to be those in the best position to supply them.

This imbalance in current resources has been accentuated by the fact that the import requirements of so many countries for replenishment and rehabilitation after the war have been abnormally high. In the case of most of the war-disrupted countries of Europe and Asia, the difficulty of meeting their exceptionally large need for commodities of many kinds has been rendered more acute by the disappointingly slow recovery in local production, especially of food, and in the general stabilization of their domestic economies. The exports of those countries during 1947 were still running considerably below imports, and their other pre-war sources of foreign income were greatly reduced.

Moreover, despite the cuts that have been made since the war in the external value of the currencies of various of the countries of continental Europe and of the Far East, considerable uncertainty is still felt as to the ultimate exchange value of many of them, especially in the case of those countries whose political position is unsettled or whose domestic economy is still far out of balance. Consequently, other countries, when unable to obtain from these countries equivalent return for their exports in goods particularly desired, have been anxious to avoid accumulating credit balances in currencies of doubtful stability or which are blocked from use elsewhere. Various countries in Europe and the Western Hemisphere have, in fact, not only been requiring the settlement of all trade balances at the end of stated periods in dollars or other "hard" currencies, but have been insisting upon partial payment in dollars for some of the essential commodities they supply.

SHRINKAGE IN MEANS OF COVERING TRADE DEFICITS

The difficulty of many countries in maintaining the volume of their imports has been increased by the fact that the alternative means which have been available to them during earlier post-war years for covering their trade deficits had shrunken considerably by the latter part of 1947. Shipping, foreign investments, tourists' expenditures, and other pre-war sources of alternative foreign income, which used to be so important to various European countries in balancing their international accounts, have recently been yielding only a fraction of their former amounts.

The governmental credits in various forms that had been extended by certain of the more prosperous countries during 1945 and 1946, especially to the former belligerent countries of Europe, and which had made possible a substantial part of the importations of those countries since the close of the war, had to be drawn on in increasing volume in 1947. Thus, whereas 20 per cent of the total U. S. exports of goods and services during 1946 were financed through credits, by the second quarter of 1947, foreign countries on the average had to draw upon credits to cover fully one-third of their purchases from the United States, and for certain individual countries the proportion was very much higher. It is not surprising that, by the latter months of 1947, most foreign countries found their unused credits approaching exhaustion.

The quantities of goods going abroad as relief supplies and gift shipments and as other unilateral transfers, which had accounted for another 20 per cent of United States exports in the preceding year, represented a much smaller proportion of United States exports in 1947, after the tapering off of UNRRA. A large part of the recent unilateral transfers have consisted of deliveries of basic essentials to the occupied areas. The United States foreign relief program of 1947, which was the principal successor to UNRRA, was confined to Austria, Greece, Italy, and Trieste. The emergency relief program for France, Italy, and Austria, approved by Congress in December, is intended to cover the shipment to those countries of the minimum requirements of food, fuel, and similar essentials for the next few months, pending the working out of longer-range plans.

Most countries which had reserves of gold and foreign exchange, or which had accumulated them during the war, have since been drawing upon them at an increasing rate to cover their current trade deficits. The foreign sales of gold to the United States and net drawings on official dollar balances during the first half of 1947 came to more than the amount for all of 1946. By late 1947, the principal countries known to be holding such reserves over the minimum needed to back their currencies or to finance their current flow of international trade were reduced to Switzerland, Portugal, Turkey, South Africa, the Philippine Republic, Cuba, Venezuela, Uruguay, and Argentina.

A number of foreign countries resorted during the year to requiring their citizens and enterprises to register their foreign-held balances and other assets, and to place them at the disposal of their governments, in return for the equivalent in domestic currency. The proceeds of such liquidations of foreign assets as are known to have taken place have apparently relieved the balance-of-payments position of those countries in only small measure.

The funds for reconstruction and development projects and to tide governments over temporary deficits in their balance of payments, which the International Bank and the International Monetary Fund, respectively, felt warranted in advancing during 1947, helped importantly in particular situations. The number of countries involved, however, has thus far been small.

In addition to the United States, a number of other governments have extended substantial trade credits since the war, in support of their own exports and to help other countries to obtain needed imports for which they were not yet able to pay. Most notable in this regard have been Canada, Sweden, Switzerland, Belgium, Argentina, and Brazil. By latter 1947, however, almost all of these lending governments found themselves over-extended, and made it known that they were not in a position to grant any further trade credits. In fact, they had become concerned over the inadequacy of their reduced exchange reserves to cover their own current import needs.

PROSPECT FOR MODERATION OF TRADE RESTRICTIVE TREND

It has become clear that, before a wide restoration of more normal trading and payment arrangements can be expected, especially on the part of most countries of Europe and Asia, considerable progress would have to be made in their rehabilitation. The volume of their production and of their exports would need to be increased, their current needs for food and other essentials more fully satisfied from domestic sources, the values of their currencies stabilized, and, in general, favorable conditions restored for the freer exchanges of goods and settlement of balances with other countries. The past year witnessed a good deal of earnest planning and courageous effort in these directions on the part of various countries. Particularly notable for the degree of planned cooperative utilization of joint resources toward common recovery was the program developed by the 16 countries of western Europe which conferred at Paris during the summer of 1947, under stimulus from the United States.

Increasingly, however, opinion has grown that the action which the United States would be prepared to undertake would be the decisive factor in the progress of the general recovery program, especially in tiding over certain war-disrupted countries until their own recuperative efforts, individually and jointly, have had time to work out and to bring results, and in assisting them to rebuild and expand their productive and trading capacities. During that recovery period, the ability of certain of those countries to maintain their importations at high level, even of the more essential types of products, and to avoid resort to greater discrimination against American commerce, will apparently depend largely upon the magnitude of the shipments to them which the United States may furnish or finance beyond their current ability to pay.

THE MARSHALL PLAN AND INTERNATIONAL TRADE PROSPECTS

If the Marshall Plan—under Congressional consideration at time of writing — should be substantially adopted, considerable quantities of goods would be supplied during the next few years, under loans or other special arrangements, to the countries of Europe which are ready to participate in the cooperative program for European recovery. In so far as the United States, by goods and funds, thus reinforces the program for self-help and reciprocal assistance on the part of European countries agreed to at the Paris Conference of 1947, and as those countries progress toward economic recovery and general stability, the basic pressures causing the recent spread of restrictive and arbitrary trade controls will have been relieved in the region where they have been most acute.

Considering that the countries involved in the European Recovery Program have normally accounted for nearly one-half of world trade, as they regain their ability to pay their own way, and in currencies acceptable for purchases anywhere, the present trade difficulties in other regions should also be eased. In fact, since it is contemplated that an appreciable portion of the commodities to be furnished, especially of those in short supply, shall be procured wherever obtainable outside the United States, other countries in the Western Hemisphere and elsewhere would be benefiting directly from the very initiation of this program, in the way of both larger markets and a more ample supply of dollars. Moreover, as the participating European countries are helped to increase their productivity, more goods would become available for export markets. Countries outside of Europe could thus be gainers in two ways. They would have additional sources of supply for their import requirements, and would not need to send so much of their export products to Europe on credit or against unusable currencies.

The events of the year demonstrated vividly how deterioration in the trade and financial position of one group of countries can create difficulties for various other countries with which they have important commercial relations. Conversely, if the European Recovery Program is even substantially successful, it should be bringing about conditions favorable to the relaxation of restrictions on international trade and payments also on the part of countries in other regions.

GENEVA TRADE AGREEMENT AND THE ITO CHARTER

Despite the present preoccupation of most countries with their immediate foreign trade difficulties and their recent resort to increasingly restrictive measures, the year saw marked evidence of a widespread recognition that it was desirable to work out long-term principles and programs, to be ready when relaxation of the current transitional pressures allows governments greater freedom of choice in their trade policies.

Representatives of 23 countries participated in the simultaneous negotiations held in Geneva in the summer of 1947 for the reduction of trade barriers in all forms. Eighteen of them also agreed upon a draft charter for an International Trade Organization, through which the member countries are to cooperate in bringing into general operation a detailed code of international conduct that is designed to promote trade expansion and economic development on a mutually advantageous basis. At the full International Conference on Trade and Employment, convened by the United Nations at Havana toward the close of the year, the Geneva group was joined by 40 additional countries, for the purpose of perfecting and adopting a definitive charter for the ITO in a form that would command wide adherence.

The first step taken thus far toward implementing this broad program has been the bringing into provisional operation in January 1948 on the part of nine countries, which together used to account for over half of all world trade, of the duty concessions to each other worked out at Geneva and also the easements with regard to other forms of trade control to the extent that their existing legislation allows. These countries are Australia, Belgium-Netherlands-Luxembourg (Benelux Customs Union), Canada, Cuba, France, United Kingdom, and the United States. However, all of these countries except the United States and Cuba, are now restricting the importation of many classes of goods, in order to bring their purchases into closer balance with their current ability to pay. Indeed, in recognition of the abnormal conditions in international trade now widely prevailing, the Geneva Agreement on Tariffs and Trade provides that, under certain circumstances, the obligation upon governments to avoid resort to quantitative restriction on imports or to apply them without discrimination may not be fully binding until March 1952.

On the other hand, in the case of many of the commodities on which the reductions in American duties have been made, few foreign countries are yet in a position to increase substantially the volume of their exports to the United States. Moreover, the official exchange rates of a number of countries, especially those of continental Europe, have come to overvalue their currencies, and the prices at which their products would now need to be sold in the United States are often reported as too high to induce volume purchases, even at the reduced duties. For the immediate future, therefore, the increase in international trade as a result of the new concessions in tariffs and preferences by these nine countries is not likely to be of large proportions.

Some time may elapse before any important number of additional countries conclude similar reciprocal trade agreements or make effective those negotiated at Geneva, and before the various governments signatory to the ITO Charter complete the necessary ratifications to make that binding. Even allowing for the postponed practical effect and for some defections, however, the steps taken are highly significant. For the first time in history, the nations normally accounting for the great bulk of world commerce have looked beyond their immediate limitations, and have agreed upon common principles and practices to govern their trade relations over the long-run, and these are distinctly more liberal and expansive in character than have been the actual trade practices of many of them for some time past.

The very existence of the Geneva Trade Agreements, and the wide acceptance in principle of the ITO Charter, with the prospect of each participating country ultimately sharing in the benefits from the concessions and undertakings by each of the many other participants, can have appreciable influence upon the general trend of post-war trade policies. They might well serve both as restraints upon the adoption during the emergency period of extreme measures which might later be difficult to change, and as setting the general direction and pattern toward which governments might be prompted gradually to adjust the methods of regulating their foreign trade, as they work out of the present abnormal conditions and regain the ability to choose among alternative courses of action.

PUBLIC ACCOUNTING

By Carman G. Blough
Director of Research, American Institute of Accountants

GENERAL

The solution to a large proportion of the problems which face countries where private enterprise still predominates is tied up in the satisfactory settlement of the conflicting claims of capital, management, labor, and government upon the proceeds of business operations. Consequently, the measurement of such proceeds assumes great importance. Because of the part the independent public accountant plays in assuring the reliability of this measurement, steps taken by the profession to maintain high standards of performance and to develop accounting and auditing procedures which will make this information more useful and reliable become correspondingly significant. Considerable progress in this respect was made during 1947. An unusually large number of important projects were completed, work on other projects carried over from the previous year continued to receive careful study, and new ones were started.

Developments in accounting and auditing procedures in America are closely identified with the work of the committee on accounting procedure and the committee on auditing procedure of the American Institute of Accountants. While the pronouncements of these committees do not have the force of rules or regulations, except when their adoption by the membership is sought and received, their acceptability has given them considerable authority. A review of the bulletins issued by the committees during the year and of the problems now under consideration reveals the questions in accounting and auditing procedure with which the public accountant has been particularly concerned during 1947. Much of the work of the committee on auditing procedure has been directed to a clarification of the qualitative standards of auditing and of the means by which these objectives are achieved. To a large extent the studies of the committee on accounting procedure reflect the accountant's desire to devise useful measures of the results of business operations.

ACCOUNTING PROCEDURES—INCOME AND EARNED SURPLUS

The question of what constitutes the most practically useful concept of income for the year is one on which there is much difference of opinion. On the one hand, net income is defined according to a strict proprietary concept by which it is presumed to be determined by the inclusion of all items affecting the net increase in proprietorship during the period except dividend distributions and capital transactions. The form of presentation which gives effect to this broad concept of net income has sometimes been designated the "all inclusive" income statement.

On the other hand, a different concept places its principal emphasis upon the relationship of items to the operations, and to the year, excluding from the determination of net income any material extraordinary items which, if included, would impair the significance of net income so that misleading inferences might be drawn therefrom. This latter concept would require the income statement to be designed on what might be called a "current operating performance" basis, because its chief purpose is to aid those primarily interested in what a company was able to earn under the operating conditions of the period covered by the statement.

The point at which these concepts result in the greatest variations in practice is in the treatment of material extraordinary charges and credits which have been recognized in the accounts during the period for which the income statement is prepared. Conclusions on the accounting treatment of these very important items are set forth by the committee on accounting procedure in *Accounting Research Bulletin No. 32,* "Income and Earned Surplus." In harmony with the views expressed in earlier bulletins, the committee stated that "there should be a general presumption that all items of profit and loss recognized during the period are to be used in determining the figure reported as net income. The only possible exception to this presumption," in the committee's view, "would be with respect to items which in the aggregate are materially significant in relation to the company's net income and are clearly not identifiable with or do not result from the usual or typical business operations of the period. Thus," the committee continues, "only extraordinary items such as the following may be excluded from the determination of net income for the year, and they should be excluded when their inclusion would impair the significance of net income so that misleading inferences might be drawn therefrom:

"(a) Material charges or credits (other than ordinary adjustments of a recurring nature) specifically related to operations of prior years, such as the elimination of unused reserves provided in prior years and adjustments of income taxes for prior years;

"(b) Material charges or credits resulting from unusual sales of assets not acquired for resale and not of the type in which the company generally deals;

"(c) Material losses of a type not usually insured against, such as those resulting from wars, riots, earthquakes and similar calamities or catastrophes except where such losses are a recurrent hazard of the business;

"(d) The write-off of a material amount of intangibles, such as the complete elimination of goodwill or a trademark;

"(e) The write-off of material amounts of unamortized bond discount or premium and bond issue expenses at the time of the retirement or refunding of the debt before maturity.

"Adjustments resulting from transactions in the company's own capital stock, amounts transferred to and from accounts representing a segregation or appropriation of surplus or general contingency and inventory reserves such as those dealt with in *Bulletins 28* and *31,* and adjustments made pursuant to a quasi-reorganization, should be excluded from the determination of net income under all circumstances."

CONTINGENCY RESERVES

The committee also directed its attention to the acceptability of charging to income provisions for two somewhat similar types of contingency reserves. In *Accounting Research Bulletin No. 28,* "Accounting Treatment of General Purpose Contingency Reserves," it took the position "that general contingency reserves, such as those created (a) for general undetermined contingencies, or (b) for a wide variety of indefinite possible future losses, or (c) without any specific purpose reasonably related to the operations for the current period, or (d) in amounts not undetermined on the basis of any reasonable estimates of costs or losses, are of such a nature that charges or credits relating to such reserves should not enter into the determination of net income."

Similarly, in *Accounting Research Bulletin No. 31,* "Inventory Reserves," the committee expressed the opinion that "inventory reserves, such as those created (a) for possible future inventory losses on inventories not on hand or contracted for, or (b) without regard to any specific loss reasonably related to the operations of the current period, or (c) for the purpose of reducing inventories other than to a basis which is in accordance with generally accepted accounting principles, are of such a nature that charges or credits relating to such reserves should not enter into the determination of net income and that they should not be used to relieve the income account of any year."

INVENTORY PRICING

In *Accounting Research Bulletin No. 29,* "Inventory Pricing," the committee set forth its views regarding the general principles applicable to the pricing of inventories of mercantile and manufacturing enterprises. As explained in the bulletin, "a major objective of accounting for inventories is the proper determination of income through the process of matching appropriate costs against revenues." The committee's conclusions with respect to the "cost or market, whichever is lower" principle is of particular interest. "In keeping with the principle that accounting is primarily based on cost," the committee stated, "there is a presumption that inventories should be stated at cost." It recognized, however, that "a departure from the cost basis of pricing the inventory is required when the usefulness of the goods is no longer as great as its cost," and stated that the measurement of losses from such sources is "generally accomplished by stating such goods at a lower level commonly designated 'market.'"

In the application of this rule, the committee believed there should be greater restraint in writing down inventories than has been common practice and, consequently, defined the term "market" as used in the phrase "lower of cost or market" to mean "current replacement cost (by purchase or reproduction, as the case may be) except that (1) market *should not exceed* the net realizable value (*i.e.,* estimated selling price in the ordinary course of business less reasonably predictable costs of completion and disposal) and (2) market *should not be less than* net realizable value reduced by an allowance for an approximately normal profit margin." Thus, a floor and a ceiling are placed on replacement cost in arriving at market.

CURRENT ASSETS AND LIABILITIES

Considerable variation and inconsistency exist in practice with respect to the classification and display of current assets and current liabilities. In *Accounting Research Bulletin No. 30,* "Current Assets and Current Liabilities—Working Capital," the committee discussed the nature of these items with a view to developing criteria to aid in the more useful presentation thereof in financial statements.

Recognizing that past practice in classifying these items tended to be overly concerned with immediate or forced liquidations, the committee took cognizance of the tendency in recent years of creditors to rely more upon the ability of debtors to pay their obligations out of the proceeds of current operations. Accordingly, current assets, for accounting purposes, were defined to mean "cash and other assets or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business. The term 'current liabilities' is used principally to identify and designate debts or obligations, the liquidation or payment of which is reasonably expected to require the use of existing resources properly classifiable as current assets or the creation of other current liabilities."

INCOME CHARGES FOR PLANT COSTS

One of the problems brought about by the current high level of prices is that of what can be done to prevent corporate capital from being depleted because construction and equipment prices are now so high in comparison with pre-war costs. Obviously, if present costs continue, it will be necessary to replace existing facilities at considerably more than their cost, and that will require the tying up of additional capital in plant and equipment.

The committee on accounting procedure, mindful of the importance of a satisfactory solution to this problem not only for the stability of our economy but also for the fair presentation of financial statements reporting the results of business operations, has devoted considerable attention to various solutions proposed. Two of the most noteworthy proposals have been the propositions (1) that annual charges to income for depreciation of plant facilities should be based on the estimated replacement cost of the present facilities and (2) that income statements should bear a portion of the costs of construction during the period covered by the statement equal to the amount by which actual costs exceeded estimated "normal" construction costs.

The committee, in *Accounting Research Bulletin No. 33,* "Depreciation and High Costs," stated the conclusion that neither of these proposals provides a satisfactory solution to the present problem. In reaching this conclusion, considerable weight was given to the fact that any method adopted must be susceptible of objective tests, if published financial statements are to be useful to those who rely upon them. The concept that accounting procedures should be applied consistently—not only from year to year, but also with respect to both the balance sheet and income statement—was another consideration influencing the committee's decision.

Although the committee did not feel that these proposals were sufficiently satisfactory to justify a departure from previously accepted practices at this time, it did recognize the propriety of making annual appropriations of net income or surplus to reflect gross discrepancies between the cost and current values of productive facilities when replacement of such facilities at the higher price levels is contemplated and management deems such a procedure to be helpful. It also called attention to the fact that "plants expected to have less than normal useful life can properly be depreciated on a systematic basis related to economic usefulness."

STUDY OF BUSINESS INCOME

In this connection, special mention should be made of a three-year project commenced in 1947 by the Institute of Public Accountants with the financial assistance of the Rockefeller Foundation. The variety and importance of present-day uses of "income" statements make it essential that all users of such information be in substantial agreement as to the postulates governing the measurement of business income. One evidence of the present lack of such agreement is the recurrence of problems like that just discussed. Recognizing that a resolution of these conflicting views requires a clearer understanding of the nature of business income, the Institute initiated a survey and historical study of the word "income" and of the terms associated with it in business, economic and political fields.

The Institute and the Rockefeller Foundation have each made available the sum of $30,000 to be used over a period of three years in pursuing this study. A prominent member of the Institute will be general director of the project in association with a small executive committee. Information developed under the direction of the executive committee will be referred to a study group of 30 to 40 members, including accountants, members of the bar, specialists in taxation on income, economists, statisticians, commercial and investment bankers, business analysts, and representatives of government, labor, and management. It is contemplated that the results of the study will be published in a series of reports.

DISCLOSURE IN FINANCIAL STATEMENTS

The more widespread use of financial information, particularly by those who are relatively inexperienced in accounting and auditing procedures, has considerably increased the responsibilities of the independent public accountant. More than ever, he must satisfy himself through the exercise of sound technical procedures and informed judgments that the statements he certifies are not misleading either by misstatements or by the lack of important information.

The profession has constantly endeavored to evolve means by which users of financial statements may more readily determine the financial information they need, but is well aware that there is room for improvement. Careful consideration is being given as to whether the accountant should require a full set of financial statements (balance sheet, income statement, and an analysis of surplus) to be included in all published reports to stockholders of which his certificate is a part. Practices such as the submission of highly condensed financial statements; failure to disclose the amount of reserves netted against assets; use of omnibus reserves or reserves for unspecified contingencies without further explanation or information regarding charges or credits to them; failure to disclose the basis upon which inventories are valued or to give information as to the proportions of raw material, work in process and finished goods; lack of disclosure of the method followed in determining cost of inventories (such as last-in first-out, first-in first-out, or average cost); failure to state the basis of valuation of fixed assets; and failure to state the number of shares of stock authorized, issued and outstanding, as well as the par or stated value of the stock, are also under consideration by the committee.

AUDITING STANDARDS

One of the most significant accomplishments of the committee on auditing procedure during the year was the issuance of a "Tentative Statement of Auditing Standards—Their Generally Accepted Significance and Scope." Since 1941, when the short form of accountant's report now in general use was recommended by the Institute, accountants have customarily included in their reports an assertion that the "examination was made in accordance with generally accepted auditing standards." While these standards have been in existence and observed for many years, there has never been available an authoritative statement codifying and explaining just what they are. This the committee has attempted to do in its statement on auditing standards.

The substance of the generally accepted standards tentatively adopted by the committee may be summarized as follows:

General Standards—

1. The examination is to be performed by a person or persons having adequate technical training and proficiency as an auditor.
2. In all matters relating to the assignment an independence in mental attitude is to be maintained by the auditor or auditors.
3. Due professional care is to be exercised in the performance of the examination and the preparation of the report.

Standards of Field Work—

1. The work is to be adequately planned and assistants, if any, are to be properly supervised.
2. There is to be a proper study and evaluation of the existing internal control as a basis for reliance thereon and for the determination of the resultant extent of the tests to which auditing procedures are to be restricted.
3. Sufficient competent evidential matter is to be obtained through inspection, observation, inquiries and confirmations to afford a reasonable basis for an opinion regarding the financial statements under examination.

Standards of Reporting—

1. The report shall state whether the financial statements are presented

in accordance with generally accepted principles of accounting.

2. The report shall state whether such principles have been consistently observed in the current period in relation to the preceding period.
3. Informative disclosures in the financial statements are to be regarded as reasonably adequate unless otherwise stated in the report.

CASE STUDIES IN AUDITING PROCEDURE

Auditing procedures are the means by which the independent auditor attains or complies with the generally accepted auditing standards applicable to field work. Auditing procedures are so numerous and should be varied so greatly to meet particular circumstances that it is not possible to make an enumeration of procedures which would be applicable generally, or even widely. Experienced professional judgment, therefore, determines the scope and nature of auditing procedures to be followed in each individual engagement.

The committee believes that the most satisfactory method of presenting auditing procedures is by the presentation of a series of case studies illustrating the auditing procedures adopted and applied in actual examinations. Accordingly, each member of the committee was requested to submit a comprehensive description of audit work actually performed on a complete engagement.

So far, six case studies have been issued. They deal with the audits of companies of the following types: No. 1—A Loading and Hauling Equipment Manufacturer; No. 2—A Newspaper Publisher; No. 3—A Department Store; No. 4—A Public Utility; No. 5—A Corn Processing Company; and No. 6—A Management Investment Company of the Open-End Type.

The committee hopes that the case study material will serve a useful purpose not only within the profession but also in the various colleges and universities throughout the country which offer advanced instruction in accounting and auditing subjects.

ACCOUNTANT'S REPORTS

The end product of the public accountant's professional work is usually a report in which he states what he has done and, if appropriate, expresses an opinion regarding the fairness of the presentation of the financial condition and results of operations in the company's financial statements. This report is frequently of considerable length and may comment in detail upon various phases of the audit, specific items in the financial statements and various aspects of the company's accounting procedures and practices. Such reports are usually designed for the use of the management of the company or for others qualified and required to use such detailed information.

When financial statements are to be published for the use of the general public, however, it is believed that such detail serves no useful purpose and in many cases leads to confusion and misunderstanding. Accordingly, a very brief report, stating concisely what the accountant has done and his opinion on the statements is considered appropriate. In the interest of greater uniformity and understanding of these reports, a short form of report or "certificate," recommended by the Institute as a standard, has been adopted quite widely by the profession.

Accounting and auditing are highly technical subjects, however, so it is not surprising that, as accountants' reports have come to receive greater attention from the general public, certain misconceptions have arisen regarding what this short form of report means. To clear up these misunderstandings, the Institute, during 1947, issued a pamphlet, "What Does an Auditor's 'Certificate' Mean?" explaining in everyday language what each statement in the standard short form of the accountant's report is intended to say. While the pamphlet was prepared primarily for the information and guidance of the staffs of bankers and other credit grantors, it should be equally useful to investors and others who rely on information in financial statements.

Efforts are also being made by the committee on auditing procedure to develop a more readily understandable form of report. Because other projects have been considered to be of greater immediate urgency, consideration of this problem has been somewhat limited. During 1948, however, the committee plans to apply itself more actively to the question.

The committee has also taken steps to correct another source of confusion to users of financial statements; the presentation of financial statements on the stationery or in a report of an independent public accountant without a definitive expression clearly indicating the representations he is making as to their fairness. When statements are presented in this manner to those who do not have special information regarding the preparation of the financial statements, these third parties have no basis for determining what inferences are warranted by the association of the accountant's name with the financial statements and may place undue reliance upon them.

Since the accountant can not effectively control the use to which financial statements accompanied by his name may be put, the committee believes the profession should adopt practices which will minimize the possibilities of uncertainties and misinterpretations by third parties. To accomplish this the committee, in *Statements on Auditing Procedure No. 23,* recommended that, "whenever financial statements appear on the stationery or in a report of an independent certified public accountant, there should be a clear-cut indication of the character of the examination, if any, made by the accountant in relation to the statements, and either an expression of opinion regarding the statements, taken as a whole, or an assertion to the effect that such an opinion can not be expressed. When the accountant is unable to express an over-all opinion, the reasons therefor should be stated. When the accountant considers it appropriate to comment further regarding compliance of the statements with generally accepted accounting principles in respects other than those which require the denial of an over-all opinion, he should be careful to indicate clearly the limits of such comments."

Since these recommendations entail a modification and extension of a position taken by the committee in an earlier statement which was formally adopted by the Institute membership, it was believed that they should be placed before the membership for formal consideration. Accordingly, the committee's statement has been issued on a tentative basis pending formal action by the membership in 1948.

LEGISLATION

Legislation regulating the practice of public accountancy not only affects the conditions under which the certified public accountant practices his profession, but also raises important questions of public policy. The growing reliance of the general public upon the opinions of public accountants as to reliability of financial information makes it mandatory that no legislation jeopardize the quality of such opinions. Experiences of recent years, however, reveal a desire by some to relax the requirements for admission into the ranks of certified public accountants. Feeling that the public will be better served if standards are maintained at a high level, certified public accountants have resisted these efforts.

Of particular concern to these accountants during the year, was the passage in New York State of a bill frequently referred to as the "Oliver Bill." This legislation permits the issuance of a certificate without examination to applicants who present evidence of 15 years experience in the intensive application of accounting principles and auditing procedures satisfactory to the State Board of Certified Public Accountants, subject to review by the Commissioner of Education. In signing this bill, the Governor indicated that the powers granted under it will be used only in exceptional cases and that the high standards of public accountancy in New York must not be lowered. The profession feels, however, that satisfactory completion of an adequate written examination is an important measure of the competence of an applicant for a CPA certificate and that passage of this bill may lead to more serious lowering of professional standards.

Of similar concern to accountants is what appears to be an attempt by a few members of the legal profession to restrict or impede the practice of public accountants before certain governmental administrative bodies and before the Tax Court. The accounting profession has taken the position that there are frequent cases in which the accountant is especially qualified to handle the interests of clients appearing before such bodies and that, if public accountants are not permitted to carry on such practice, clients will have to engage additional professional help unnecessarily and may not be as well represented.

INCOME TAXATION

While no major Federal income tax legislation was enacted during 1947, it was a year in which much consideration was given to possible general tax revisions and to the lowering of taxes. These matters are, of course, directly related to a large part of the public accountant's work. It is hoped that, during the coming regular session, Congress will find opportunity to make changes in the tax laws to conform income tax regulations more closely to generally accepted principles of accounting and to remove many of the inequities which exist in the present tax procedure. This is a big task and one regarding which accountants would be especially glad to be of assistance.

During March 1947, Justice Bernard L. Shientag, in rendering a decision in the "Bercu case" in the Supreme Court of New York County, ruled that certified public accountants who give advice to taxpayers and interpret income-tax laws are not engaged in illegal practice of law. This decision was most encouraging to certified public accountants who felt that their right to give tax advice, which for 30 years had been assumed to be a proper and legitimate activity of the accounting profession, accepted by taxpayers and the governmental taxing authorities alike, had been unnecessarily attacked by the legal profession. It is to be hoped that the Bar Association will accept this clarification of the question, and will continue to cooperate with the accounting profession, through the state and national conference groups which have been formed for that purpose, in the development of working methods through which lawyers and certified public accountants can be most helpful to their clients and to each other in tax practice.

CONCLUSION

Because of the diverse nature and far-reaching implications of developments in public accountancy during 1947, it has been impossible in this discussion to do more than summarize the principal topics that have arisen. This summary should show, however, that public accountancy has made significant progress during 1947. It is believed that the future holds equal promise for the profession's continuing contributions to the welfare of our economic system and the public it serves.

LIFE INSURANCE

By JAMES S. ELSTON

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LEGAL RESERVE INSURANCE IN FORCE

The legal reserve life insurance in force in regular United States companies Dec. 31, 1947 is estimated by the Life Insurance Association of America at about $190,500,000,000, 9.1 per cent greater than at the end of 1946, the previous highest amount. This includes $125,600,000,000 Ordinary insurance, $31,600,000,000 Industrial, and $33,300,000,000 Group.

The new paid-for business for 1947, not including revivals or increases, is estimated at $23,400,000,000, a decrease of .3 per cent over 1946 but an increase of nearly 50 per cent over 1945 and of 30 per cent above the previous record of 1929. The new Ordinary is approximately $16,000,000,000, 3.4 per cent below the 1946 record but about 29 per cent above the next highest record of 1929; the Industrial $4,600,000,000, 2.7 per cent above the previous highest amount of 1946, and the Group $2,800,000,000, 15.6 per cent above the previous record of 1946. The insurance lapsed and surrendered was slightly greater in absolute amount than the previous comparative minimum (1946) but possibly not as a percentage of the amount in force. The combined assets are estimated at $51,500,000,000, an increase of about 6 per cent, and the payments to policyholders and beneficiaries at $3,000,000,000, of which about 43 per cent represents death claim payments to beneficiaries, and the balance payments to living policyholders.

LEGAL RESERVE LIFE INSURANCE *

(Dollars in Millions)

	Income—Disbursements			Assets—Liabilities—Surplus	
	1946	1945		1946	1945
Total Premium Income	$5,727	$5,249	Real Estate	$ 735	$ 857
Investment Income	1,473	1,444	Mortgages	7,055	6,636
Other Income	868	981	Bonds	35,350	32,606
			Stocks	1,247	999
Total Income	8,068	7,674	Collateral Loans	7	3
			Loans to Policyholders	1,891	1,962
Death Claims Paid	1,274	1,282	Cash	774	780
Matured Endowments	405	414			
Annuities and Disability	335	310	Deferred and Unpaid Premiums	703	638
Surrender Values Paid	327	241	All Other Assets	429	316
Dividends to Policyholders	507	472			
			Total Admitted Assets	48,191	44,797
Total Paid Policyholders	2,848	2,719			
			Liabilities	44,377	41,090
Other Disbursements	1,763	1,500	Surplus†	3,814	3,707
Total Disbursements	4,611	4,219			

* *Spectator Insurance Year Book*—All United States companies (370), in 1946.

† Includes amount set apart for dividends to policyholders during following year and special, voluntary, contingency, etc., reserves.

NEW ISSUES—TERMINATIONS—INSURANCE IN FORCE

	1946	1945	1946	1945
	Ordinary Business		Group Business	
New Issues and Increases	$ 16,776	$ 10,944	$ 6,111	$ 1,519
Terminations:				
Death	925	937	183	179
Maturity	240	248	—	—
Surrender	895	641	7	22
Lapse	2,168	1,459	194	176
Other	940	758	307	2,850
Total	5,168	4,043	691	3,227
Insurance in Force	116,110	104,456	28,196	22,770
	Industrial Business		All Lines of Business	
New Issues	4,842	3,970	27,729	16,433
Terminations:				
Death	217	236	1,325	1,352
Maturity	150	161	390	409
Surrender	607	340	1,509	1,003
Lapse	2,035	1,604	4,397	3,239
Other	301	274	1,548	3,882
Total	3,310	2,615	9,169	9,885
Insurance in Force	30,247	28,497	174,553	155,723

As the "Other Disbursements" item in the first table includes $346,000,000 paid to beneficiaries under supplementary contracts, it will be seen that the investment income was more than sufficient to meet all expenses. The total paid policyholders and beneficiaries together with the amount reserved to meet future policyholder claims was greater than the premiums paid by policyholders.

There is also about $7,500,000,000 insurance in force in fraternal orders and assessment organizations and $2,300,000,000 U. S. Government Life insurance on veterans of the First World War. The present amount of National Service Life Insurance, resulting from the war, is about $36,000,000,000. Various restrictions in the original act were removed by Congress which liberalized the conditions in 1946 and in February 1947. In a very successful campaign, the Veterans' Administration, veterans' organizations, and life underwriter associations joined in conserving existing and reinstating lapsed policies, nearly 1,000,000 of which for $6,000,000,000 were reinstated, offsetting approximately the year's terminations.

DISTRIBUTION OF INVESTMENTS

A distribution of investments at the end of 1947 is based on estimates by Bruce E. Shepherd, Manager of the Life Insurance Association of America, as:

	1947	1946	1941
Government bonds	39.3%	44.8%	20.8%
State and local bonds	1.2	1.2	6.1
Dominion of Canada bonds	2.5	2.6	1.9
Public utilities securities	14.3	12.7	15.5
Railway securities	5.9	6.3	9.0
Corporate securities other than railway and public utilities	11.0	8.7	6.7
Farm mortgages	1.7	1.7	2.8
City mortgages	14.9	12.9	17.9
Policy loans and premium notes	3.8	3.9	8.9
Real estate	1.6	1.6	5.7
Cash and miscellaneous	3.8	3.6	4.7

There was an increase of about $39,000,000 in the Canadian bonds held and of about $90,000,000 in the real estate. The laws of a number of states, which have always restricted life companies to holding real estate only for purposes of home or branch office use and for the satisfaction of mortgages in default, now permit acquiring real estate under certain conditions primarily for investment purposes. For quite a number of years as fast as they could, while at the same time protecting their policyholders, the companies have been liquidating the real estate acquired during the depression through foreclosure until it was almost all sold. the increase in 1947 was the result of substantial investments in housing projects and in certain types of commercial real estate to be leased for retail purposes.

NET RATE OF INTEREST EARNED

The net rate of interest earned in 1946 dropped under 3 per cent for the first time. The 1946 rate was 2.92 per cent, compared with 3.07 per cent in 1945 and 3.61 per cent in pre-war 1940. The rate has been declining almost continuously since 1925, when it was about 5.25 per cent. For the first time in a number of years, it appears that in 1947 the average interest rate earned on new investments may have increased moderately, partly because of the slightly higher rate available in recent months on bonds, but largely because of the moderate decline in percentage of assets invested in government bonds, and of the increase in percentages invested in corporate securities and mortgage loans, and real estate for investment purposes.

Manager Shepherd observes: "It should be borne in mind, however, that the overwhelming volume of outstanding investments held by life insurance companies is in long-term securities acquired under less favorable investment conditions. Thus the effects of the reduced earning power of life insurance funds which has been the heritage of depression and war will continue to be felt for some time even though yields on new investments improve." When the interest earnings of the life companies are reduced, death claims and other payments to policyholders and beneficiaries must be met by a corresponding increase in premiums or a reduction in dividends.

STATE LEGISLATION

Reviews in recent years have commented on the effects of the United States Supreme Court decision that insurance is interstate commerce. Public Law 15, adopted by Congress in March 1945, provided among other features "that the continued regulation and taxation by the several states of the business of insurance is in the public interest"; and the business of insurance shall be subject to the laws of the several states and "no act of Congress shall be construed to invalidate, impair, or supersede any law enacted by any state for the purpose of regulating the business of insurance, unless such act specifically relates to the business of insurance, provided that after January 1, 1948" but not before, the Sherman Act, the Clayton Act, and "the Federal Trade Commissions Act shall be (subject to certain conditions) applicable to the business of insurance to the extent that such business is not regulated by state laws." Congress has granted an extension to June 30, 1948.

In a review of the 1947 insurance legislation Charles C. Klocksin says that "the most intense efforts in the legislative sessions which occurred in most of the states were centered on the program of the all-industry and insurance commissioners' committees in order to meet the requirements of Public Law 15. Proposals of the all-industry committee, or bills similar to it, establishing rate-making procedures for fire and marine insurance and for casualty and surety business, have been enacted in all but a handful of states. Fair trade practice bills designed to place on a state level the provisions of the Federal Trade Commission's fair trade practices act were approved in 17 states. A number of states have long had statutes relating to unfair insurance practices, such as anti-discrimination, anti-rebating, misrepresentation, and fraudulent advertising. It is not unlikely that some of these jurisdictions will conclude that their present statutes are adequate and go as far as are necessary in the circumstances. The conduct of the insurance business itself, and the wise and effective administration of these laws, will be major factors in ultimately determining the adequacy of state regulation.

"It must be recognized that since the Supreme Court's edict was handed down, great strides have been made in preserving the system of state regulation of insurance, and while the task of the all-industry and insurance commissioners' committees has not been completed there are hopeful signs of its consummation in the near future. It seems fair to say that neither Congress nor the Federal agencies concerned are likely to intervene while progress in this direction is being made."

STATE REGULATION OF NON-FORFEITURE VALUES, ETC.

As explained in reviews in recent years, the new non-forfeiture and valuation laws became effective on business issued after Jan. 1, 1948. During 1947, the remainder of the states except Oklahoma (and the District of Columbia), which had not already passed this legislation, made it at least permissive. Never in the history of life insurance has such a thorough revision of non-forfeiture values, premium rates, and wording of the policy contracts themselves been necessary. In connection with the latter, the companies have, of course, taken advantage of the situation to make other improvements which they have had in mind. Thus, for the first time, the reserves and non-forfeiture values may be based on such a modern mortality table in all states except Oklahoma. In some states, this is permissive only instead of required, and some companies doing business in a limited number of such states will continue on the old table.

It is estimated that 96 per cent of the insurance paid for hereafter will be on the C.S.O. reserve basis. In most companies the premium rates have been increased and the non-forfeiture values increased at the same time. This situation might be misunderstood as the effect of only the new mortality table itself would be to reduce premiums. Increases in premiums are due to the assumption that the companies will earn a lower rate of interest. In general, term premiums, in the calculation of which the interest rate is relatively unimportant, have been reduced. A few companies had already made a change to a lower interest rate and their present changes are comparatively slight, although some of these that made reductions in interest assumptions recently have made further reductions now.

SPECIAL INSURANCE COMPILATIONS

Several special compilations, some based on special requests for information to the companies, have been made this year by the Institute of Life Insurance. There has been a great increase in the amount of life insurance used to protect small loan and mortgage borrowers under borrowers' group insurance. This form of insurance more than doubled in 1946, and there was nearly $600,000,000 in force at the end of the year. The number of borrowers was nearly 5,300,000, an increase of 64 per cent in the preceding 12 months. The number of lending institutions using the plan was nearly 7,500. There is a wide range of type of loan covered under this group protection, including small bank loans, installment purchase accounts, and mortgage loans on homes. A large part of the larger loans that are insured are covered by individual policies, written under term or ordinary insurance plans on the individual borrower's lives.

VETERANS HOME LOAN INSURANCE

Another report shows that more than $500,000,000 has been advanced to veterans by the life insurance companies for home loans under the G.I. Bill of Rights. This represents only a part of the home financing extended to veterans by the life insurance policyholder funds, as many veterans have financed their home purchases through direct loans, without calling on the special provisions of the G.I. Bill of Rights.

DISTRIBUTION OF INSURANCE INCOME

In a tabulation by the *Spectator* the distribution of $1.00 income of life companies for 1946 is worked out approximately as follows:

Death Benefits	$ .162
Paid Living Policyholders	.203
Settlement Options	.053
Added to Assets to Enable Companies to Pay Future Benefits	.412
Total	.830
Commissions and Agency Expenses	.074
Home Office Salaries	.021
Taxes and Fees	.018
Investment Expenses and All Other Operating Costs	.033
Total Expenses	.146
Asset Adjustments (Profit or Loss)	.024
Total	$1.000

LIFE ANNUITIES

At the beginning of 1947 there were over 2,966,000 life annuities in force for an aggregate annual income of $932,400,000, of which $216,100,000 was actually being paid, $352,700,000 deferred but paid-for, and the balance being paid for. The total was divided between $549,500,000 individual annuities, $317,400,000 group annuities covering 1,696,000 American workers, and the balance supplementary contracts involving life contingencies payable to insured after maturity of endowments and to beneficiaries after death of the insured. The use of benefit payments in this way is an anti-inflationary factor, helping to hold back large sums from current spending and building up future purchasing power as a stabilizing force.

DISABILITY PAYMENTS

The Institute also reported that approximately $500,000,000 of life insurance was kept in force during 1946 for disabled policyholders without payments of premiums under disability clauses attached to their life policies. These premiums will be waived as long as the total disability continues. A large proportion of life insurance includes this feature. In addition to the premium waiver benefits, disability income benefits of $74,000,000 were paid to disabled policyholders in 1946.

ENDOWMENT AND DEATH SETTLEMENTS

Forty-four per cent of life insurance benefits available in 1946 under endowment and death settlements under ordinary and group policies were used to set up continuing income plans for policyholders or beneficiaries, a new high in the proportion of funds used for this purpose. The 1946 aggregate of funds set aside for future income payment was $586,000,000. The total of such funds left with the life insurance companies for payment under these income plans now amounts to approximately $3,800,000,000, an increase of $1,300,000,000 in the past three years. The increase has been progressive from year to year, as a larger proportion of the available benefits has been placed under income settlements. As recently as 1930, only 10 per cent of the then smaller benefit payments were used for income plans, and in 1920 the percentage was only about 5 per cent.

According to another Institute report, more than 4,000,000 "extra-rate" life insurance policies, representing total life insurance protection in excess of $8,000,000,000, are owned today by persons with physical impairments or special occupational hazards. Such purchases of new life insurance in 1946 under about 500,000 policies were more than $1,800,000,000, representing about 8 per cent of the total new life insurance paid for.

A special survey of the Institute analyzes the causes of the deaths among policyholders in 1946, as follows:

DEATH RATES PER 100,000

	Ordinary		Industrial	
	1941	1946	1941	1946
Organic Diseases of the Heart	208.3	237.2	167.7	228.3
Cerebral Hemorrhage	58.3	54.9	63.2	71.1
Cancer	100.8	101.6	104.7	106.6
Tuberculosis (all forms)	23.7	17.5	43.1	40.8
Pneumonia (all forms)	24.5	19.2	36.5	33.9
Nephritis	36.6	25.9	49.3	37.8
Diabetes	15.0	9.9	26.2	23.1
Suicides	18.7	15.0	9.1	6.8
Homicides	1.5	1.6	3.7	5.9
Motor Vehicle Accidents	24.2	19.0	22.3	15.8
All Other Causes	202.9	187.5	261.7	198.4
Total All Causes	714.5	689.3	787.5	768.5

It is probable that the 1947 death rate set a new low record despite increases from heart diseases and cancer.

WOMEN AND JUVENILE INSURANCE

Projecting a survey of a group of representative life insurance companies, the Institute estimates that women's purchases of new life insurance during 1946 amounted to well over $3,000,000,000, a new record annual volume. Life insurance owned by women reached a new peak in 1947, being estimated at over $35,000,000,000.

The Institute estimates that purchases of juvenile life insurance approached the $2,000,000,000-mark in 1946, that in the ordinary business representing 8 per cent of total sales, and that in the industrial 36 per cent of the total. The greater part of the juvenile life insurance purchased was on children under five years of age.

INCREASE IN LIFE INSURANCE STUDY

There has been a notable increase in the study of life insurance in the colleges and universities of the country recently and this increase would have been even larger had the facilities not been limited by lack of teaching manpower. The last report available shows that more than 200 colleges and universities provide one or more courses in insurance, 85 of them having special courses in life insurance. The Life Office Management Association estimated that more than 2,000 employees in about 180 life insurance company head offices and branch offices were studying for one or more of their examinations, this being twice the number recorded in the previous year. The American College of Life Underwriters reports that the special work in connection with the C.L.U. degree (Chartered Life Underwriter) was being materially expanded. A few universities have held special courses for advanced training in life underwriting.

LIFE INSURANCE EMPLOYMENT

An estimate of the Life Insurance Agency Management Association indicates the following approximate number of persons in full-time employment:

	January 1, 1947	
	Men	Women
Home Office	32,700	61,700
Agency Cashiers and Clerks	3,900	28,900
Agents and Agency Managers	165,200	5,300
Total	201,800	95,900

POLICYHOLDER SURVEY

A survey conducted by the Service Research Center of the University of Michigan as a part of a consumer study made for the Federal Reserve Board indicated an average of 2.3

life insurance policyholders per family among the U. S. families which are insured, and nearly half of all families have two or more policyholders. The word family here means "spending unit." Eliminating the family units which have no life insurance policyholders, three-fifths of all insured families were found to have two or more policyholders. Only 22 per cent of United States families were found to have no life insurance and these were in large part families with incomes below $2,000 annually. Half of the families with incomes of less than $1,000 owned some life insurance, and almost three-fourths of the families earning $1,000 to $1,999 had at least one life insurance policyholder. The ownership of life insurance by 78 per cent of United States families compares with a 47 per cent ownership of savings deposits, 56 per cent ownership of U. S. Savings Bonds, and 76 per cent ownership of liquid assets of any type.

FIRE INSURANCE

By Edward R. Hardy
Secretary Emeritus, Insurance Institute of America, Inc.

FIRE LOSSES

Following the usual practice of presenting the fire loss statistics, set forth below, month by month, are those for the three year period 1945, 1946, and 1947. These statistics are collected and published by the National Board of Fire Underwriters, and the value in using them is that they are collected on a uniform basis which has been the Board's practice now for some years. Hence, this degree of uniformity makes it possible to make comparison from year to year.

FIRE LOSSES BY MONTHS

	1945	1946	1947
January	$44,865,000	$49,808,000	$57,180,000
February	41,457,000	51,759,000	64,247,000
March	40,876,000	53,252,000	72,435,000
April	37,950,000	51,153,000	68,029,000
May	34,153,000	45,094,000	56,545,000
June	34,090,000	44,240,000	50,840,000
July	34,054,000	40,998,000	49,357,000
August	34,096,000	40,019,000	51,359,000
September	32,447,000	40,256,000	47,990,000
October	34,470,000	40,108,000	54,946,000
November	37,393,000	44,706,000	51,346,000
December	49,478,000	58,094,000	68,361,000
Total	$455,329,000	$461,478,000	$692,635,000

Only a casual glance at these statistics will show that for the year 1947 the fire losses exceeded those of 1946 by $131,157,000, and 1945 by $237,306,000. No words could add to the impressiveness of this statistical summary, for the purpose of showing the enormous increase in the past years' losses. All of this is not to the credit of the American property owner.

It is customary for the *Journal of Commerce,* from its daily record, to keep a list of the fires where the loss is reported at $10,000 or more, and for the month of December 1947, the geographical distribution was reported as follows:

East	161	$11,393,100
West	179	13,507,000
South	79	4,131,000
Pacific Coast	56	4,108,000
Canada	47	2,944,000
Total	522	$36,083,100

These statistics, it should be observed, account for only a small part of the total losses. It is the remaining number, so to speak, of smaller losses that make up the extraordinary total of over $692,000,000 for 1947. These losses in this amount or above, *i.e.* $10,000 or above, run fairly even through the year. This being so, then something over one-half of the total losses were due to fires where the loss was $10,000 or above.

UNUSUAL HURRICANE AND EXPLOSION LOSSES

These type of losses are largely covered by the fire insurance companies and while the damage in part follows from the fire, the initial cause, the losses are not wholly due to fire but must be included in this brief summary.

Texas City, Tex.—This loss, which was estimated at $50,000,000, probably proved to be less in the final close-up, was due to an explosion aboard a vessel in the dock. The exact cause will probably not be known but it is estimated that the claims would number at least 7,500, exclusive of industrial claims. The industrial loss is estimated at $35,000,000. Also, it is estimated that the automobiles destroyed numbered between 1,000 and 1,500. In such cases, it is customary for the central body to set up a special office for settling the losses. This was immediately done in this case.

New Orleans Hurricane.—The latest report shows that the losses from the hurricane in New Orleans on Sept. 19, 1947, had amounted to something over $2,500,000. There were many properties involved, it being reported that 28,000 claims had been listed, the damage divided between the Mississippi Gulf and Louisiana. The higher proportion (24,000) was in Louisiana. The average claim in Mississippi was $350 while the average claim in Louisiana was $110.

Florida Hurricane.—This occurred on Sept. 17, 18, and 19, 1947, and swept Florida and the North Gulf Coast. The best figures available show the estimated losses at something over $12,000,000, the claims being widely distributed.

Bar Harbor Fire Loss.—Much attention was attracted to the fires in the State of Maine because of the large loss at the famous summer resort at Bar Harbor. A conservative estimate put the losses at $6,000,000 due to the fires in Maine, and in some cases the losses were put even higher, including the non-insured losses. These losses occurred not only in Maine but also in New Hampshire.

It has been suggested that all, at least smaller cities and towns, might develop a form of protection which would follow the operation of planning what to do in case any such untoward disasters occur. Before the famous hurricane of 1938 in New England, this had been done in Westerly, R. I., with the result that, when the storm came, the committees went into action automatically and prevented a much larger loss of life and property damage than would otherwise have been the case.

STANDARD POLICY OF FIRE INSURANCE

This policy, with slight variations, has now been adopted by 44 states, Alaska and Hawaii, and the District of Columbia. The variations in any case are not important, except possibly that they meet some peculiar legal condition. The other states have their own policy, as in California, where it is a part of the law of the state. This grew out of the earthquake and conflagration of 1906. Massachusetts has had its own policy for approximately 75 years and has been loath to change it.

It is desirable that, just as far as possible, a uniform policy be adopted for all of the states. To bring that about is difficult, and this may be illustrated by the fact that, when the standard policy of 1887 was adopted in the State of New York, it was also adopted by the State of Michigan, with a change in one word. That, of course, has now passed away with the new policy.

LEGAL CHANGES

In regard to the Supreme Court decision of 1943, it will be recalled that this important decision changed the law of 75 years, when the Supreme Court decided that the states had the right to control the method of conducting the insurance business within their borders, to the dictum that the United States Government had a part therein. This made such a tremendous change that, by agreement between the companies and the United States Government and the states as well, the states and the companies would have until Jan. 1, 1948 when they were supposed to have all of their proposed workings in order and adopted by the states. The time proved to be too short and was extended to July 1, 1948. The important question involved in this matter is really the rate-making question, and it appears that some 35 states have passed rate laws and work remains to be done for the others to adopt their measures before July 1, 1948. To have accomplished what has been done is a matter of commendation to the states and the companies, and it may quite safely be said that the remaining states will then adopt the measures which will be approved by the state and the United States Government. Should, however, any state fail to do so and the time not again be extended, then in those states the United States Government may play a more important part in conducting the business than in those states where by mutual agreement requirements have been adopted.

The thought that is sought to be conveyed by a good deal of this report is that much remains to be done, and a year from now a more proper summary of what has been done will be available.

MARINE INSURANCE

By Henry C. Thorn

Manager, North America Companies, New York

GENERAL

The Marine market, in common with the Fire and Casualty markets, experienced in 1947 a tremendous increase in volume of business respecting both amounts insured and premiums. As this article is being written in December, it is too early to tell just what the underwriting results will be, but it is apparent to all that they will not be good, though probably better than the Fire or Casualty Companies experience.

The year was one of serious disasters such as *Texas City*, the explosion at Brest, and numerous ship accidents. In addition to all this, the losses from theft and pilferage were staggering. The whole moral let-down that followed the war continues, and in some parts of the world the seaports are reduced to a state bordering on anarchy. The political upheavals in Europe and the Far East added to the severe labor unrest that is worldwide, naturally presented thieves with opportunities that would not exist to any such degree in a more ordered world.

THE SECURITY BUREAU, INC.

This is not to say that nothing is being done about this serious situation. Early in the year the Marine Underwriters, in conjunction with the shipowners of all nationalities operating out of the Port of New York, including Towboat, Stevedores, Motor Truck Operators, Warehousemen, Dry Docks, Shipyards, Watching Services and other Maritime interests, set up at considerable expense The Security

Bureau, Inc., an organization composed entirely of former experienced F.B.I. agents and headed by a former chief agent. It has made great progress in cooperating with various law enforcement agencies, Federal, state and city, to the end that port thieves are prosecuted vigorously and other protective measures installed that are bound, as time goes on, to make pillaging of cargoes in the Port of New York, at least, far more difficult than in the past.

This Bureau is attracting wide attention in other ports of the United States, and it is likely that somewhat similar organizations will be created. It has also been most favorably discussed in the great London Marine Insurance market as well as being brought up at the meeting of the International Union of Marine Insurance held at Cannes, France in September. All of this is a healthy sign. While the perils of the sea, fires, wars, and like perils are more or less beyond the control of man, losses due to theft, and poor packing, too, can very definitely be controlled, at least to a certain extent.

EXPORT PACKING FACTOR

As to the question of packing for export, American shippers, with certain notable exceptions, are far behind the exporters of the other leading maritime nations. The situation has been troubling the carriers quite as much as it has the underwriters. Progress is being made toward educating exporters, but some scheme must be worked out, and one with teeth in it, if we are to stop the terrific losses that our commerce has to bear traceable to breakage, thefts, water damages, and other sundry injuries that improperly packed merchandise is subject to. There is obviously no comparison in the stresses, strains, and risks that overseas shipments are subjected to in comparison with moving goods by land conveyances in our domestic trade. It will cost much money, time, and effort to improve packing generally, but it will be well worth the effort and expense if our goods arrive in good shape overseas. Obviously, not only will customers be better satisfied, but as results improve, so will the Marine Insurance premiums be reduced. The rates are largely based on the underwriting results—this should be obvious to all who are engaged in overseas trade.

PREMIUM RATES

As to premium rates, these are very materially higher than they were in pre-war days. One notable achievement of the year was the amalgamating of the Marine Extension Clause and rates with the basic coverage and premiums. In spite of the higher scale now prevailing, the rates are not sufficiently high to offset the steady stream of losses occurring in nearly all trades and in all parts of the world.

Strange as it may seem, the volume of War Risk carried is greater even than during the war itself. Naturally the rates are lower, for the risks of capture, seizure, and destruction by men-of-war, submarines, and planes no longer exists, but the risk of ships hitting unswept mines is still serious and will probably continue for a long time. Many casualties have occurred since the cessation of hostilities, and practically all cargoes are insured against this hazard.

POST-WAR MINE LOSSES

It will probably be somewhat surprising to the average person how real a hazard these mines are, in spite of the vast amount of sweeping that has been done by the Allied Navies. The *Liverpool Journal of Commerce,* April 30, 1947, reported that since the end of the war up to that time, there had been 246 casualties. It is not the loss by flags that counts in this post-war mine loss, but the casualty areas. As might have been expected, the North Sea accounted for 37, the South Baltic for 30, and other Scandinavian waters next, with the Mediterranean, English Channel, and Adriatic following in close order. Naturally this does not mean that these vessels were all totals, as a large percentage were able to get into port. It is also interesting to note that in July 1947 the United States Coast Guard reported that a First World War mine was sighted in the vicinity of Cape May, New Jersey. It was blown up by the Philadelphia Navy Demolition Unit.

According to the best records available in the American market there have been approximately 100 vessels total losses, 106 damaged, and on the remainder the information is not complete. The latest casualty occurred to a Panamanian tanker which struck a mine off Denmark on Dec. 10, but succeeded in reaching port. It should be made clear that the figures quoted above are for merchant vessels only, of the seagoing type, and do not include naval vessels, minesweepers, and similar craft.

HULL INSURANCE

Premiums are naturally very much greater than in pre-war days, owing to the great increase in shipbuilding in America as a wartime measure, and not only is the fleet tremendously enlarged, but the values of the vessels far exceed pre-war figures. The losses have been heavy, and the bad weather, especially in the Western Ocean, continues. It is too early to foretell what the combined underwriting results will be, but the profit if any, is bound to be small. Not only have the major casualties been great, but the wartime "Liberties" especially have developed severe rudder and propeller claims in numerous instances. Competition with London continues to be severe.

One can not view the Maritime labor situation, as it exists in the American Merchant Marine, without concern, not only to the present day operations of ships but the probable bad effect on our future as the world's greatest Maritime nation. This is the position our country faces as a result of the war.

There are some favorable factors, however, that must not be overlooked and that will have a direct bearing on future hull underwriting. Some of these are the great technological advances in ship and engine building, the tremendous possibilities of Radar, Loran, and other modern gadgets that will eventually be in common use. There is also the great human element involved, and this refers to the very superior type of young ships' officers being trained and highly educated by the Government and states, the chief institution being the United States Merchant Marine Academy at Kings Point, New York. Several thousand of these young graduates are now manning the Merchant Fleet. The importance of this scientific four-year training can not be exaggerated, for when all is said and done, the safety of a sea venture rests finally in human hands.

The American Market for Marine Insurance is much more internationally minded than in the past. It is encouraging foreign business to come here, and many of the local companies are expanding their underwriting to foreign fields. This trend has been gaining impetus and, unless all signs fail, will continue.

NATIONALISTIC LAWS

One of the outstanding events of the year that gave all Marine underwriters, of whatever nationality, great concern was the enactment of strict nationalistic laws governing Marine and other insurance in Argentina. This philosophy has been spreading and may continue to do so. It is most unfortunate for all concerned, assured as well as underwriter, for if any business is international in character it is surely Marine Insurance. Such restrictive legislation is bound to have an adverse effect on overseas commerce and at a time when the world needs the free flow of goods, services, etc. between nations. In this connection, it is very significant that foreign insurance companies may, after complying with the laws of our various states, do business in America on a free competitive basis with domestic companies. When we refer to the American Marine Insurance market we always include the admitted foreign companies. It happens during this time that these foreign companies are mostly British, but in past years German, Italian, French, Japanese, Scandinavian and others have operated freely in the United States. It is the earnest hope and desire of many companies of American origin to be permitted the same privilege throughout the world, but while some foreign countries welcome the idea, a great many countries have enacted restrictive legislation that prevents this.

CASUALTY INSURANCE AND CORPORATE SURETYSHIP

By William Leslie

General Manager, National Bureau of Casualty Underwriters

STATE LEGISLATION

During 1947, the legislatures of 44 states and of Alaska, Hawaii, and Puerto Rico, met in regular session. An unusual volume of important regulatory legislation affecting casualty insurance and corporate suretyship was enacted.

Continuing the program of legislation growing out of the United States Supreme Court's decision in 1944 holding insurance to be commerce, and the enactment by Congress of Public Law 15 in 1945 declaring that continued regulation of the insurance business is in the public interest and that the Federal anti-trust laws will be applicable to the business of insurance after the moratorium period (Jan. 1, 1948) to the extent that the business is not regulated by state law, 30 * additional states and Alaska and Hawaii adopted casualty and surety rate regulatory statutes. With similar laws enacted in 1945 and 1946 and several laws enacted prior to the Supreme Court decision, only six states—Idaho, Missouri, Oklahoma, Rhode Island, Virginia, and West Virginia—the District of Columbia, and Puerto Rico do not as yet have comprehensive casualty and surety rate regulatory laws. These rate regulatory statutes are designed to meet the impact of the Sherman Antitrust law.

Additional legislation, having in mind the other Federal Anti-trust statutes, was also considered. Thus, with respect to the Federal Trade Commission Act, 17 states (Florida, Indiana, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, New Jersey, New Mexico, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Washington, and Wisconsin) passed State Fair Trade Practice measures; to meet the possible application of the Robinson-Patman Act, state statutes specifically authorizing payment of commissions to brokers and prohibiting unfair discrimination and rebating were adopted in nine jurisdictions (Arkansas, Colorado, Connecticut, Hawaii, Maryland, Massachusetts, New Hampshire, North Dakota, and Pennsylvania); and to meet the possible effect of the Clayton Act, laws regulating interlocking directorates and investment in stocks of other insurance companies, were passed in three states (Connecticut, Illinois, Pennsylvania).

Special statutes regulating accident and health insurance were enacted in 19 states: Colorado, Connecticut, Delaware, Florida, Indiana, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, New Mexico, New York, Ohio, Oklahoma, South Carolina, Vermont, Washington and Wisconsin.

Most of the above statutes were

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* Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Utah, Vermont, Washington, Wisconsin and Wyoming.

based in whole or in part upon standard bills formulated by the All-Industry Committee representing all segments of the insurance industry in cooperation with a committee of the National Association of Insurance Commissioners.

Supreme Court decisions in 1946 *Prudential v. Benjamin,* 328 U. S. 408, and *Hobbs v. Pacific Mutual,* 328 U. S. 822) dispelled the fear that the tax imposed upon foreign companies by retaliatory laws and the favored tax treatment of domestic companies, violated the Commerce Clause of the Federal Constitution. Hence, three states (Maine, Maryland, Oregon), which had repealed their retaliatory laws, now re-enacted them, and six states (Arkansas, Maine, North Carolina, Oklahoma, Oregon and Washington) again amended their premium tax laws to restore exemption of or lower the rates for domestic companies.

Other important state legislation included amendments of the Workmen's Compensation laws of some 25 states increasing benefits thereunder. Several additional states brought occupational diseases under their workmen's compensation laws. The problem of payment of compensation under the Workmen's Compensation laws to partially disabled employees sustaining subsequent injuries continued to have attention, and seven additional states (Alabama, Nebraska, New Hampshire, South Dakota, Texas, Vermont, West Virginia) enacted laws setting up special Second Injury Funds to take care of such compensation.

New or completely revised and strengthened financial responsibility laws were enacted in nine states (Alabama, Colorado, Florida, Idaho, Iowa, North Carolina, North Dakota and Wyoming). The effective date of the 1945 new Pennsylvania Financial Responsibility Law was postponed for two years until July, 1949.

Multiple line legislation was adopted in 13 additional states: California, Colorado, Idaho, Indiana, Iowa, Michigan, Minnesota, Montana, New Hampshire, New Jersey, New Mexico, New York and Utah.

FEDERAL LEGISLATION

The most important bill, insurancewise, passed by Congress was an amendment to Public Law 15 to extend the moratorium thereunder for six months, until June 30, 1948. Casualty and surety rate regulatory legislation for the District of Columbia was introduced in the first session of the 80th Congress but was not finally acted upon and will be considered in the second session beginning in January, 1948.

WORKMEN'S COMPENSATION INSURANCE

Marked progress in the development of an adequate system of rating plans for workmen's compensation insurance was made in 1947. Two important new plans were promulgated by the National Council on Compensation Insurance: Interstate Experience Rating Plan and Retrospective Rating Plan D.

The Interstate Experience Rating Plan will help solve the rating problem for risks with multiple locations in different states, which has been augmented in recent years by the industrial trend toward decentralization of operations. As a matter of sound governmental policy, as well as sound economic policy, businesses are diversifying their operations into multiple locations. It is obvious that such a plan is necessary if interstate bus, trucking, and air transport risks, for example, are to be properly rated. Moreover, contracting concerns take on projects in different states and do not confine their operations to a particular state or area. This decentralization of industry and growth of interstate operations, together with an accompanying increase in premium volume, created a demand on the part of insureds for a method of rating which will effect an over-all adjustment based on the combined interstate experience of the risk. The experience of a risk operating two or more plants within a single state has always been subject to combination for experience rating purposes, and it was difficult for insureds to understand why a combination of experience for rating purposes should be denied merely because one or more locations happened to be in a different state. Further, interstate rating is consistent with the new legal status of insurance as interstate commerce.

Briefly, the Interstate Experience Rating Plan provides that a risk shall qualify for interstate experience rating if it qualifies for rating on an intrastate basis for any one state that has approved the Plan. The average experience modification developed on the basis of the individual risk's combined experience will be applicable in all states in which interstate rating applies. Such modification will also apply to any new operations undertaken in states where the Plan is approved.

Retrospective Rating Plan D provides for the optional combination for retrospective rating purposes of third-party liability insurance with workmen's compensation insurance in the states where Plan D is approved. It is a formula plan under which the maximum and minimum premium ratios are not rigidly fixed, but may be selected in advance by the insured and the carrier to fit the requirements of each risk, with the proper insurance charge for the selected values and the proper allowances for expenses and contingencies being provided for in the basic premium ratio and loss conversion factor established. The eligibility requirement is a standard premium of $5,000 or more for the coverages rated under Plan D. For many years, underwriters have considered the over-all experience of a risk for all third-party liability lines in passing upon it. The majority of insurance buyers take the same view; they are concerned with the various types of coverage but, in the final analysis, the important question is whether or not the total cost for third-party liability insurance properly reflects the hazards of the risk's own operations. With the advent of rate regulation for liability insurance, in addition to workmen's compensation insurance, the need for an actuarially sound and practicable plan, more closely relating insurance cost to the requirements of the individual risk, became of increasing importance, and Plan D was developed to fill this need.

In 1947, the National Council completed its comprehensive field analysis for the purpose of determining whether a satisfactory substitute for payroll as the exposure base could be found, and whether it is feasible to incorporate a limitation of payroll for premium computation purposes. The conclusion was reached that total payroll offers the only universally available exposure base, and is the most readily verifiable of any base that has been found. Furthermore, employers are strenuously opposed to any increase in record keeping or to any increase in the expense involved in record keeping. The adoption of any new exposure base, or further payroll limitation, would undoubtedly require employers to increase and further refine the records now maintained, with attendant confusion and added expense.

Recognizing that it is to the best interest of the public and insurers to establish rates that will be as accurate as possible for the period during which the insurance is afforded, it was concluded that present rating methods might be improved if a way could be found to give over-all recognition, state by state, to the aggregate effect of factors that produce underwriting results either better or worse than those contemplated by the present rate-making procedure. The National Council, accordingly, made a new effort to develop a rate level correction factor based on underwriting results within a specified period in the recent past and limited in its effect to a moderate percentage decrease or increase in the rate level otherwise determined. It was felt that this would be far superior to the impractical alternatives of modification of the premium base or application of wage factors in the determination of rate level.

The program developed by the National Council provides for the application of an over-all rate level correction factor for each state which will produce a 1 per cent change in rates, subject to a maximum departure of 5 per cent, for each two percentage points that the earned-incurred loss ratio for the state for the two latest calendar years combined is above or below the state's permissible loss ratio by more than a neutral zone of two percentage points.

GENERAL LIABILITY INSURANCE

The first comprehensive revisions since 1939 in the rates, rules, and classifications for general liability insurance were completed during 1947. In general, the revisions resulted in reductions in rates, broadening of coverage without additional premium charge, clarification of language to express underwriting intent more clearly, the adoption of many new classifications, particularly for product liability insurance, and revisions in existing classifications.

The rates for all classifications of risks for all lines of general liability insurance, except contractual liability, were reviewed in connection with the revisions. The effect of the revisions countrywide was a reduction in the bodily injury and property damage liability rates for basic limits. The results, however, differed substantially from line to line and even more substantially from classification to classification within line. Further reductions were effected through revisions of the increased limits tables for manufacturers' and contractors', owners' or contractors' protective and contractual liability insurance. The reductions in the increased limits tables resulted in uniformity in these tables for the several kinds of general liability insurance.

One important change affecting all manuals related to limits of liability. Factors for limits in excess of $500,000 per person and $500,000 per accident for bodily injury liability insurance and in excess of $100,000 per person and $500,000 aggregate for property damage liability insurance were eliminated. Such factors will now be determined for each risk individually. In cases where aggregate limits apply for property damage insurance, a new rule was adopted providing that such limits are determined for each risk individually where the estimated annual premium for basic limits is $2,000 or more. For product bodily injury liability insurance, a similar rule applies where the estimated annual premium for basic limits is $5,000 or more.

An outstanding feature of the revisions was the introduction of a complete medical payments rating program for risks rated on an owners', landlords' and tenants' liability basis, and for elevators in such risks. Medical payments insurance had been available previously on a manual basis for residence and farm risks only and was written on a limited basis for other types of risks. The rates for this coverage are a percentage of the owners', landlords' and tenants' or elevator bodily injury liability basic limits premiums and apply on a per person per accident basis, basic limits being $250 per person and $10,000 per accident. A standard provisions endorsement for the coverage for use with the standard comprehensive general liability policies was also made available.

Included in the significant classification changes was the adoption of new classifications for owners', landlords' and tenants' liability insurance for drug stores. These classifications exclude, both on and off the premises, the handling or use of or the existence of any condition in products sold, after possession is relinquished to others. For product liability insurance, many new classifications were adopted and other classifications were reworded and clarified. Examples of these are classifications relating to air conditioning, heating and refrigerating equipment, clothing, millinery and other wearing apparel, retail drug stores, frozen food, radio, television sets, and phonographs.

Revisions of the national policy

program were also adopted in the latter part of the year. Affected were the standard provisions for the comprehensive general and comprehensive general-automobile liability policies, and endorsements for use with such policies.

AUTOMOBILE LIABILITY INSURANCE

In 1947 it was recognized that the post-war automobile liability rate increases announced in 1945 and 1946 had proved to be insufficient to make it possible for companies to meet the mounting loss costs and the greater accident frequency which had prevailed since the termination of gasoline rationing. Accordingly, on Feb. 17, 1947, the third post-war rate increase was promulgated in most states with similar rate increases in other states after approval by the supervisory authorities.

Companies continued to feel the pressure brought upon surplus by higher loss costs, increasing unearned premium reserves due to greater premium volume, and the depressed investment income resulting from stock market conditions. One company which operated in 26 states was forced to discontinue, with the result that the insurance industry had to assimilate numerous additional automobile liability risks required by law to purchase such insurance. Several states requested Automobile Assigned Risk Plans in order to meet the needs of risks which were unable to purchase automobile liability insurance. The National Advisory Committee on Automobile Assigned Risk Plans initiated steps to develop a simplified plan for adoption and use in all states having such plans.

On Dec. 1, 1947, the Fourth Revision of the Standard Provisions for Automobile Liability Policies was announced. This revision accomplished considerable simplification and clarification of policy language with some further broadening of coverage.

Simultaneously with the announcement of the Fourth Revision of the Automobile Liability Policy a complete revision of the Rules Section of the *Automobile Casualty Manual* was promulgated. In addition to rule changes necessary to place the manual in complete accord with the policy revision, many improvements in and clarification of rules were incorporated in the manual, including medical payments rates for all types of automobiles and additional increased limits tables designed to facilitate the use of the manual by manual holders. This revision constitutes the first complete revision of the manual rules since before the Second World War.

BOILER AND MACHINERY INSURANCE

The year is notable in the annals of Boiler and Machinery Insurance as having produced a minimum of Manual and policy changes. The coverage formerly known as "Off Premises Explosion," which provided indemnity for loss on the property of an assured resulting from an explosion of boilers, pressure containers, or machinery not owned or controlled by the assured, was extended to provide indemnity for an assured's liability for loss on the property of others in his care, custody, or control, resulting from such an explosion. The name of the coverage was changed to "Non Ownership Insurance" as more adequately defining the coverage, and provision was made for affording this coverage by use of an endorsement attached to the General Boiler and Machinery Policy rather than providing it under a separate policy as heretofore.

The year also saw the introduction of the Premium Adjustment Rating Plan for Boiler and Machinery Insurance. This is a retrospective rating plan for optional application to boiler and machinery risks developing standard premiums of $25,000 or more ($5,000 or more in Texas). The object of the Plan is to afford a basis of insurance for large risks for which the Manual rates do not adequately reflect the variations in conditions from risk to risk, and it is a formula rating plan similar to the Automatic Premium Adjustment Rating Plan in effect for the liability lines. The rating values consist of a fixed charge ratio, minimum and maximum premium ratios, and a loss conversion factor.

BURGLARY, THEFT, AND ROBBERY INSURANCE

It is anticipated that the premium volume for the burglary insurance lines for 1947 will substantially exceed the record high of the previous year. However, losses were of grave concern to the companies, particularly with respect to the Residence and Outside Theft and Mercantile Safe Burglary Policies. As a result, a program was developed to curtail some of the coverage under the Residence and Outside Theft Policy which was substantially broadened in 1943. Because the difficulty is principally due to the outside theft coverage, the policy limitations will be largely applicable to this feature. Owing to the fact that substantial rate increases were recently effected, it is believed that further increases would price the policy out of the market in most areas and therefore would not be a practical solution to the problem.

Another major event was the broadening of the Safe Depository Liability Policy to give effect to the recommendations of the banking business. Among the principal changes adopted is an automatic retroactive restoration provision which will provide retroactive reinstatement of the limits of liability following a loss without the payment of an additional premium. The policy also covers, without additional premium to the insured, property of customers stored in the bank's vaults which is too cumbersome to place within safe deposit boxes. By reason of these and several other changes designed to suit the coverage to the customary practices of banks in conducting a safe deposit business, it is felt that the revised policy will prove popular and will materially enhance its sale.

A fact of particular interest was the apparent turning point in the rate of criminal activity throughout the country. According to the figures released by the Federal Bureau of Investigation, covering offenses known to the police during the first six months of 1947, the increases in robbery and burglary, particularly sharp during the past two years, showed some leveling-off tendencies with increases of only 1.5 and 2.1 per cent, respectively. Larceny too, which was showing marked increases during the war, rose only 1.1 per cent during January-June, 1947, over the same period of 1946.

GLASS INSURANCE

The outstanding development in the glass insurance field was the decision of the majority of the insurance companies to limit the term of policies to a period of not more than one year. This action was brought about by the uncertainty of glass replacement costs which were increased considerably during the year. It has been found that the increase in replacement costs of certain types of glass has not been in proportion to the increases of plain plate glass; therefore, a program has been developed to adjust the rate scale for such glass to conform with the general rate increase which was put into effect during the past year.

ACCIDENT AND HEALTH INSURANCE

The remarkable growth of this branch of insurance, so noticeable during the past few years, continued, particularly in the field of group insurance and hospitalization. Accident and health premium volume for all types of carriers, including life insurance companies, reached a new high of over $750,000,000 in 1947, making it the foremost casualty insurance line by premium volume. An estimated 60,000,000 persons were insured by insurance companies and Blue Cross plans. Loss ratios, favorably affected the past several years by wartime full employment and greatly restricted use of the automobile, now threaten to climb appreciably with the full scale and increased use of the automobile, increased medical, surgical, and hospital costs arising out of the generally increased cost of living, rapid development of an increase in air travel, and expected fluctuations in the economic cycle.

Public interest in accident and health insurance continued its unprecedented growth, and insurers increasingly tried to meet the demands with desired coverages. Medical, surgical, and hospital expense coverages appeared to increase in popularity, as did the franchise or wholesale method of underwriting and family expense insurance. The growth in the development of medical insurance is of interest in its adaptability to the insuring of children of all ages and women not employed for monetary compensation. The development of students and campers group insurance has also served to make this type of protection available to an increasing number of young persons.

Despite predictions of greatly increased air travel in the years immediately ahead, accident policies were again broadened, so far as aviation hazards are concerned, to cover passenger airline travel anywhere in the world and to cover passenger travel in private planes within the bounds of North America, all without additional cost to the policyholder. Coverage was further extended to include ground coverage for insured engaged in the aviation industry. The extension of individual accident and health policies to members of the Armed Forces within the continental United States, without additional premium and despite policy exclusions to the contrary, was continued on the same basis as it had been since the outbreak of the war.

In the latter part of 1946 the task of revising the *Occupational Classifications Manual* was begun, such revision being made necessary by changes in the hazards of industry brought about principally by improved industrial methods developed during the war. New occupations were classified, many were reclassified, occupations now obsolete were omitted. The task was completed in 1947 and the new *Manual* will be ready for distribution early in 1948.

In 1947, a vast body of legislation affecting accident and health insurance was enacted, the purpose of which was to eliminate from the business publicly unconscionable practices and to increase the degree of state regulation. Simultaneously, industry and state officials approached the task of revising the Uniform Standard Provisions law, recommended by the National Association of Insurance Commissioners in 1912, and by the year's end the task had been completed. Of interest from the regulatory viewpoint also is the interest displayed by several states in those accident and health policies producing abnormally low loss ratios.

Of additional importance during 1947 were efforts on the part of the industry to satisfy public demands, expressed in part by legislation being introduced into many state legislatures and the Congress, for health insurance coverage spread over a larger segment of the population. Studies were made, the purpose of which was to give a clearer and more accurate picture of the degree of coverage already in force. Studies were also made of the problems surrounding the granting of coverage to a larger portion of the rural population. Insurers also established points of cooperation with the medical profession with a view to writing minimum medical, surgical, and hospital costs coverages, all to the end of supplying basic protection to a larger proportion of the population.

SURETY BONDS

Contrary trends manifested themselves during 1947 in fidelity and surety lines. While volume generally was moderately good there were deviations from the pattern of progress. Losses under blanket bonds for financial institutions increased during the year, while premium volume, largely because of rate reductions over the past several years, was off. Accentuating this decline in volume was the comparatively small number of new financial institutions which began business in 1947, and although many institutions increased their bond amounts, new premiums failed to make up the differential.

Fidelity bond volume also was affected in similar degree by rate reductions over the past several years and by the three-year premium rule which was inaugurated two years ago. A large number of new, if small, blanket fidelity bonds, however, were written in 1947. Blanket bonds also were written extensively to supplant schedule bonds, thereby providing greater protection for assureds.

The Towner Rating Bureau made available in September 1947, a complete revision of its fidelity and blanket fidelity sections of the manual. They have been consolidated into a single section which enables manual holders to readily determine the correct rate and classification. The balance of the manual is in the course of revision.

Surety volume, on the other hand, gave promise of reaching a higher level. While the contracting business did not fully emerge during the year from wartime urgencies and restrictions, there was more bonded building construction in 1947 than in the preceding year. Highway construction programs showed signs of acceleration, and multiple housing developments mushroomed, with many more in the blueprint stage.

High construction costs, however, had an adverse effect in many instances. A number of large contracts, in which competitive bids were received, were not awarded because of the wide difference between the dollar amounts appropriated for completion of the work and the estimates of the lowest bidders. Many such estimates so far exceeded appropriations that too frequently all bids were rejected and the building programs were postponed indefinitely.

Costs of material and labor were unduly high in 1947, but if there is a leveling off of the price range the broad construction program, which got off to a fair start in the past year, may be broadly activated in the forthcoming years.

The number of bonds written on private construction projects was not inordinately large, but there were many substantial contracts bonded. However, the new private construction performance and payment bond forms are but one year old, and an immediate expansion of bond business through the use of these forms was not generally anticipated. At the same time, private owners are learning of the value of these bonds from their brokers, agents and architects. When restrictions on building materials for private construction are lifted all along the line and with a more plentiful stockpile of available material, a substantial bond volume in this field can be expected.

While underwriting results in 1947 were favorable, it is well known to the students of the business that fidelity and surety experience can not be measured by the experience of a single year but requires a sufficiently large enough cycle so as to embrace periods of low and high loss ratios.

AVIATION LIABILITY INSURANCE

The continued introduction of new type high-speed aircraft, with their large passenger capacity, by the scheduled airlines resulted in severe losses which were reflected in an unsatisfactory experience by the aviation underwriters. Non-scheduled airlines also experienced an unsatisfactory loss ratio. This, coupled with more aggressive participation by non-admitted insurers and increased cost of claim settlements, has taxed the ingenuity and caution of the domestic underwriters.

In the personal plane field, broader coverages were introduced, and rates continued to go down during the first half of the year. Because of the frequency of accidents and inflated claim costs, however, a substantial increase in rates was dictated, but enough time has not elapsed to determine whether this increase will be sufficient. Aircraft production in the small personal plane field is going through a period of transition from the two-place type to the larger four-place type. Although this has resulted in a reduction in the number of units manufactured, there has been an increase in premium income because of the increase in rates and the larger passenger capacity per aircraft.

The unfavorable experience in aviation insurance has resulted in the withdrawal of some companies which entered the field after the war. One of the oldest groups has discontinued its underwriting activities as a group. Some of the member companies of this group contemplate entering the field on an independent basis, while others have announced their association with the remaining aviation groups.

As experience is gained with the new equipment that has been in use, though still newer equipment is yet to be placed in service by the scheduled airlines in 1948, it is hoped that the 1947 experience of the underwriters will be improved upon, but it is apparent from the size of the equipment now being used in commercial aviation that the cost of an airline crash is going to be expensive.

NET PREMIUMS WRITTEN

(By kind or type of insurance, by all U. S. casualty companies, including state funds, in the calendar years 1943–1946)

Kind of Insurance	Net Premiums Written in Calendar Years			
	1943	1944	1945	1946
1. Workmen's Compensation	$650,417,182	$641,518,082	$613,693,798	$638,601,261
2. Automobile Bodily Injury	284,627,763	320,079,518	365,142,136	511,448,483
3. Automobile Property Damage Liability......	111,296,922	122,135,971	138,300,301	198,329,826
4. Automobile Collision.....	49,305,698	56,883,678	80,995,831	145,386,734
5. Liability other than Automobile..............	127,027,068	133,852,519	146,783,747	172,079,167
6. Property Damage and Collision other than Automobile...........	14,356,381	14,908,604	18,055,783	24,260,289
7. Fidelity and Surety......	90,511,444	85,872,454	107,378,079	98,924,409
8. Accident and Health.....	164,312,867	198,157,082	220,797,895	250,689,087
9. Burglary and Theft......	39,583,159	47,519,113	55,681,032	73,344,563
10. Glass..................	12,921,875	14,052,123	15,458,265	18,733,753
11. Boiler and Machinery....	21,635,411	21,113,731	13,930,164	23,669,785
12. Credit.................	6,359,256	5,652,019	5,299,939	4,991,457
13. Livestock..............	1,014,043	1,118,042	1,191,042	1,542,612
14. Sprinkler..............	912,355	1,018,511	1,095,973	1,459,359
15. Automobile, Fire, Theft, Tornado and other Miscellaneous Lines....	28,391,930	32,570,363	41,689,988	60,093,362
Total............	$1,602,673,354	$1,696,451,810	$1,825,494,873	$2,223,554,147
Number of Companies.......	434	444	452	459

PERIODICAL PUBLICATIONS

Accounting Review
Tappan Hall, University of Michigan, Ann Arbor, Mich.
Annals, The
American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia.
American Banker
32 Stone Street, New York City.
American Business Combined with System
4660 Ravenswood Ave., Chicago.
American Economic Review
Northwestern University, Evanston, Ill.

American Exporter
386 Fourth Ave., New York City.
American Import and Export Bulletin
10 Bridge Street, New York City.
American Insurance Digest and Insurance Monitor
605 North Michigan Ave., Chicago.
Banking
American Bankers Association, 200 Madison Ave., New York City.
Banking Law Journal
465 Main Street, Cambridge, Mass.
Barron's
40 New Street, New York City.
Bond Buyer, The
67 Pearl Street, New York City.
Business Week
330 West 42nd Street, New York City.
Commercial and Financial Chronicle
25 Park Place, New York City.
Controller
1 East 42 St., New York City.
Credit World
1218 Olive Street, St. Louis, Mo.
Eastern Underwriters
41 Maiden Lane, New York City.
Financial Age, The
132 Nassau Street, New York City.
Financial World
86 Trinity Place, New York City.
Fortune
350 Fifth Ave., New York City.
Harvard Business Review
330 West 42nd Street, New York City.
Insurance
116 John St., New York City.
Insurance Advocate
123 William Street, New York City.
Insurance Field
234 W. Liberty St., Louisville, Ky.
Insurance Law Journal
350 Fifth Ave., New York City.
Journal of Accountancy, The
13 East 41st St., New York City.
Journal of American Insurance
919 North Michigan Ave., Chicago.
Journal of Business
5750 Ellis Ave., Chicago.
Journal of Commerce
63 Park Row, New York City.
Life Association News
11 West 42nd Street, New York City.
Life Insurance Courant
Oak Park, Ill.
Magazine of Wall Street, The
90 Broad Street, New York City.
N. A. C. A. Bulletin (Bulletin of the National Association of Cost Accountants)
385 Madison Ave., New York City.
Nation's Business
Chamber of Commerce of the United States, Washington, D. C.
National Underwriter
420 E. Fourth St., Cincinnati, O.
Spectator
Chestnut and 56th St., Philadelphia.
Standard
89 Broad Street, Boston.
Trusts and Estates
50 East 42nd Street, New York City.
Weekly Underwriter
116 John Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ECONOMICS

American Academy of Political and Social Sciences, 3457 Walnut Street, Philadelphia.
American Accounting Association, University of Indiana, Bloomington, Ind.
American Chamber of Commerce for Trade with Italians, Inc., 105 Hudson St., New York City.
American Economic Association, Northwestern University, Evanston, Ill.
American Fair Trade Council, Inc., 11 West 42nd St., New York City.
American Home Economics Assn., 620 Mills Bldg., Washington, D. C.
American Institute of Accountants, 13 E. 41st St., New York City.

American Institute of Weights and Measures, 33 Rector St., New York City.
American Petroleum Institute, 50 W. 50th St., New York City.
American Retailers', Inc., 128 W. 31st St., New York City.
American Statistical Assn., 1603 K St., N.W., Washington, D. C.
Better Business Bureau, Nat'l., 405 Lexington Ave., New York City.
Chamber of Commerce of the United States of America, 1615 H St., N.W., Washington, D. C.
Controllers Institute of America, 1 East 42nd St., New York City.
Cooperative League of U. S. A., 167 W. 12th St., New York City.
French Chamber of Commerce of the U. S., 4 E. 52nd St., New York City.
General Society of Mechanics & Tradesmen of New York City, 18 W. 44th St., New York City.
Home Market Club, Inc., 38 Chauncy St., Boston, Mass.
Institute of Economics, 722 Jackson Pl., Washington, D. C.
Institute of Internal Auditors, 120 Liberty St., New York City.
International Accountants' Society, 3411 S. Michigan Ave., Chicago.
Mellon Institute of Industrial Research, 4400 Fifth Ave., Pittsburgh, Pa.
National Assn. of Cost Accountants, 385 Madison Ave., New York City.
National Assn. of Credit Men, 1 Park Ave., New York City.
National Assn. of Real Estate Boards, 22 W. Monroe St., Chicago.
National Bureau of Economic Research, Inc., 1819 Broadway, New York City.
National Foreign Trade Council, Inc., 26 Beaver St., New York City.
National Research Council, 2101 Constitution Ave., Washington, D. C.
National Wholesale Grocers' Assn. of the U. S., 60 Hudson St., New York City.
New York Stock Exchange, 11 Wall St., New York City.
Order of United Commercial Travelers of America, 632 N. Park St., Columbus, O.

BANKING AND CURRENCY

American Bankers Assn., 200 Madison Ave., New York City.
American Institute of Banking, 200 Madison Ave., New York City.
Investment Bankers Assn. of America, 531 First National Bank Bldg., 33 S. Clark St., Chicago, Ill.
National Assn. of Mutual Savings Banks, 60 E. 42nd St., New York City.
New York Clearing House Assn., 77 Cedar St., New York City.
United States Savings and Loan League, 221 N. La Salle St., Chicago, Ill.

INSURANCE

Actuarial Society of America, 393 Seventh Ave., New York City.
American Institute of Accountants, 13 E. 41st Street, New York City.
American Institute of Marine Underwriters, 99 John St., New York City.
American Life Convention, 230 Michigan Ave., Chicago, Ill.
American Management Association, 330 West 42nd St., New York.
American Marine Insurance Syndicates, 99 John St., New York City.
Association of Casualty & Security Executives, 60 John St., New York City.
Casualty Actuarial Society, 90 John St., New York City.
Institute of Life Insurance, 60 E. 42nd St., New York City.
Life Insurance Association of America, 165 Broadway, New York City.
Life Insurance Sales Research Bureau, 115 Broad St., Hartford, Conn.
Life Office Management Assn., 110 E. 42nd St., New York City.
National Assn. of Life Underwriters, 11 W. 42nd St., New York City.
National Assn. of Mutual Casualty Cos., 919 Michigan Ave., Chicago.
National Board of Fire Underwriters, 85 John St., New York City.

National Bureau of Casualty & Surety Underwriters, 60 John St., New York City.

National Council on Compensation Insurance, 45 East 17th St., New York City.

National Fire Protection Assn., 60 Batterymarch, Boston, Mass.

National Travelers Aid Assn., 425 Fourth Ave., New York City.

Surety Assn. of America, 60 John St., New York City.

DIVISION XI

AGRICULTURE AND ALLIED INDUSTRIES

CONDITIONS IN AGRICULTURE

By Arthur P. Chew
Information Specialist, Department of Agriculture

GENERAL

Production of food on United States farms in 1947 was a new high record. Tremendous crops of the food grains were more than sufficient to offset a reduced output of vegetables caused by an unfavorable spring. The corn crop was short; but the effect of that was not felt at once. It will be more evident in 1948, when tight feed supplies will curtail livestock production. Mounting foreign production of some food items contributed to the United States food supply. Our imports of certain agricultural products, notably sugar and bananas, were larger in 1947 than in any year since the beginning of the Second World War.

Food supplies for domestic consumption in the United States were about as large in 1947 as the previous record total of 1946, and were distributed more evenly throughout the year. Consumption per person was about 17 per cent above the pre-war (1935-39) average. Food prices at retail fluctuated considerably but became significantly higher in the later months. The demand for foods was exceptionally strong both at home and abroad. About the same proportion of the total food supplies went into domestic consumption as in 1946. Our sustained high production permitted heavy shipments to occupied areas and to our former allies.

The consumption of individual foods per capita differed somewhat from that of 1946. It was lower in chicken and turkey, fluid milk and cream, canned fruits and fruit juices, fresh vegetables, dried beans, and canned soups. There were some increases in the consumption of sugar, meats, eggs, cheese, evaporated milk, butter, lard, margarine, rice, and fresh fruits. Some foods continued to be in smaller supply on a per capita basis than before the war, but in most cases even these were more plentiful for United States consumption than in other years since the pre-war period 1935-39. This group of foods included butter, canned fish, and sugar.

In nutritive value the food supply available to United States consumers in 1947 was substantially higher than before the war.

GRAIN PRODUCTION

Farmers met with unusual obstacles in an extremely adverse spring. Corn was the chief crop which could not overcome the early adversities. The outturn of corn, slightly above that of 1940, was otherwise the smallest since 1936. With barley and sorghum grain also below the average, the tonnage of feed grains was relatively small. The carry-over from previous seasons was fairly large. Partly because livestock numbers on farms decreased, the supply per animal unit was only about 10 per cent below the average of the previous 10 years, though higher than in most years prior to 1937. Hay was a larger-than-average crop and the carry-over was large. Hence the supply of hay per animal unit was the most liberal of record, though much of it was of poor quality.

Output of crops in the United States in 1947 was near the average of the 1942-46 period, the best five years in the country's history. It was only about 5 per cent less than the record set in 1946, on the basis of preliminary estimates. Although corn production was relatively small and held down the feed-grain total, food grains were produced in record volume. Hay, oilseed, fruits, sugar crops, tobacco, and truck crops ranged from above average to near record in volume. Only a few crops, in addition to corn, were below average to near record in volume. Only a few crops, in addition to corn, were below average. Livestock products reached a relatively high level, much above that of any prewar year, though less than that of any of the last five years.

The season was favorable for winter wheat, and for the first time the country harvested more than 1,000,000,000 bushels. Augmented by a relatively large spring wheat crop grown despite adverse planting conditions, the production of all wheat was about 1,400,000,000 bushels—a new record. Rice reached a new high mark. Rye production was one-third larger than in 1946, though only two-thirds of the average. Buckwheat production was well above average. As mentioned, total food-grain tonnage was the largest of record.

COTTON AND OTHER CROPS

Oilseed production included relatively large outturns of soybeans and peanuts, the third largest flaxseed crop on record, and production of cottonseed one-third above 1946 though below the average. Altogether, the oilseed crop yielded a tonnage about 11 per cent above that of 1946 and one-fifth above the average.

Cotton acreage was about one-sixth larger than in 1946, and yields were better than average; production was more than one-third larger than in 1946 and nearly up to average.

RECORD CROPS

Record crops included wheat, rice, pears, and sugar beets. Outturns of flaxseed, soybeans, hay, buckwheat, tobacco, peanuts, sugar beets, peaches, grapes, citrus fruits, and truck crops were relatively heavy. Production of oats, potatoes, beans, peas, and apples was above average. Production was below the average in barley, rye, and cotton though these crops were well above the production of 1946. Production of corn, sorghum grain, sweet potatoes, sugarcane, and broomcorn was smaller than in 1946.

The August 1 estimate of the combined acreage of all crops for harvest was 347,300,000 acres, slightly (0.5 per cent) more than in 1946. With the exception of 1943 and 1944, this total exceeds that of any other year since 1932. Planted acreages totaled 357,400,000 acres. The loss of 10,100,000 acres was less than that of any other year since 1930 except 1946. Acreage planted fell short of acreage planned, largely because light abandonment of winter wheat provided less acreage than usual for replanting to corn and sorghums. In addition, adverse weather prevented farmers from planting intended acreage of oats and corn.

Crops for which goals had been set fell below goals by a total of 10,400,000 acres, or 3 per cent. Plantings of wheat, rice, dry peas, and peanuts exceeded the goals, in each case by a relatively wide margin, but corn, oats, barley, rye for harvest, flaxseed, sorghums, potatoes, sweet potatoes, soybeans for beans, sugar beets, and dry beans were far below the goals. Tobacco, sugarcane, and all hay for harvest were below the goals in a lesser degree.

FRUIT PRODUCTION

Deciduous fruit production, according to preliminary estimates, was about 6 per cent less than the 1946 record. Apple production was about average; peaches and grapes were slightly smaller crops than 1946 records; pears were a record. Prospects for the new citrus crop were favorable in all areas except Arizona, where hot dry weather caused much damage. This crop in 1946-47, set a high record. Truck crops for fresh market and for processing were well above average though below the record tonnages of 1946.

LIVESTOCK AND DAIRY PRODUCTS

Production of livestock and livestock products was about 2 per cent less than that of 1946, about 6 per cent less than that of 1945 and that of 1944, and 10 per cent less than the peak production of 1943. Most of the decline was in meat animals and in wool and mohair. Output of dairy and poultry products was nearly at the 1946 level. Estimated at 42,000,000 pounds liveweight, the production of cattle, hogs, sheep, and poultry was about 1,700,000 pounds less than that of 1946, about 9,600,000 pounds less than the 1943 record, but greater than in any year prior to 1942.

The number of hens on farms had been steadily declining since the peak year 1944; it seemed likely, as 1947 drew to a close, that production of eggs would be only about 2 per cent less than in 1946 and 7 per cent less than in 1944. Egg production was well above that of any year previous to 1946. Total milk production was only about 1 per cent less than in 1946 and 2 per cent less than in 1945. Production per cow, at a record level throughout most of the year, was high enough nearly to offset the smallest number of cows milked.

FOOD SCARCITY ABROAD

The food outlook for 1947-48 in many parts of the world was more serious than in either of the previous two seasons. Delayed spring planting and summer drought caused serious reduction in the United States corn crop which more than offset the increase in the wheat crop. The 1947 wheat production in the principal importing countries was considerably smaller than in 1946. The deficit in western European countries alone was expected to total over 200,000,000 bushels. In addition, western Europe had a very dry summer which greatly reduced the production of hay, potatoes, and other root crops and dried up pastures. Sharp reduction occurred in the output of dairy products, and there was some liquidation of livestock.

Production of cereals in the Soviet Union and other eastern European countries in 1947 was somewhat larger than in 1946 and seemed likely to permit some exports.

Crops in the Far East indicated a slight improvement for the coming year though price production in the surplus-producing countries was still far below pre-war and exportable supplies were only about one-third of the pre-war average. In consequence, the Far East required large imports of bread grains.

In the Far East food supplies were still very low in early 1947 though a rice crop larger than that of the previous year had been harvested. Supplies of rice available for export were only about one-fourth the pre-war average. This meant that the rice-deficit countries in the Far East would have to continue obtaining their food imports from the United States and other food-surplus countries outside the Orient.

Prospects for consumption levels in continental Europe in 1947-48 depend largely upon imports. In the 1946-47 season, food production for the Continent as a whole rose to between 85 and 90 per cent of the pre-war average. Supplies of domestic origin were supplemented by large imports which included some 12,000,000 short tons of grain for food, more than 500,000 short tons of fat for food (including oil equivalent of oilseed), about 200,000 short tons of sugar, and some dairy products, meat, and pulses.

Food production for 1947-48 is expected to be less than 85 per cent of pre-war volume. The severe winter of 1946-47, followed by a summer drought in much of western Europe, reduced 1947 grain production much below that of the previous year, curtailed the output of milk, and threatened the potato, sugarbeet, and fall fodder crops. Some countries expected to increase the food use of domestically grown grain at the expense of feed. Temporarily, abnormally heavy slaughtering may increase the meat output, but such increases can not offset the reduced output of food crops and dairy products in western Europe.

Probably the farm population will continue to eat at near the 1946 level; hence the decline in supplies for the non-farm population, unless imports increase, will be greater than the decline in production.

AMERICAN FOOD EXPORTS

This nation exported more than 19,000,000 long tons of grain and other food in the year ended June 30, 1947, mostly to countries left hungry by the war and its aftermath. That was more food than any country had ever before shipped abroad in a single year; more than the United States itself exported in the immediately preceding record food export year.

Our exports, plus those of other food-surplus countries, did not, however, fully meet the needs of war-devastated countries. Millions of people in both Europe and Asia still were hungry and looking to the food-surplus countries for continued food relief. Accordingly, the President asked the Cabinet Committee, that he had appointed on World Food Programs, to carry on in 1947-48 with the continued help of the Coordinator of Emergency Export Program.

In the 1946-47 marketing season the zones occupied by American and British military forces in Europe received 3,210,268 long tons of United States food. The United Kingdom received 1,700,446 tons; Italy, 1,464,286 tons; France and French North Africa, 830,357 tons. All other European countries combined received 4,491,517 tons. Exports to the Far East provided 1,708,482 long tons of American food for Japan and Korea under the American military feeding program. Exports to India totaled 1,027,232 tons; to the Philippines, China, and Netherlands East Indies 1,030,357 tons. Latin-American republics received 2,050,000 tons, and other countries 1,671,875.

Food grain was the backbone of the export program. Easily shipped and stored, and high in food value, food grain was of supreme importance in the world food crisis. Altogether the grains, including rice, provided slightly more than 15,000,000 tons of the total shipments. Of this total, wheat and flour, calculated as wheat equivalent, accounted for 10,600,000 tons. Corn, oats, barley, rye, and grain sorghums accounted for slightly more than 4,000,000 tons; rice for 500,000 tons. Other shipments included 501,786 tons of dairy products, 213,839 tons of fats and oils, 231,696 tons of meat, and nearly 3,000,000 tons of other foods such as dry beans and peas, eggs, fish, sugar, potatoes, vegetables, fruits, and nuts.

PROSPECTIVE REQUIREMENTS

World relief needs will continue in 1948, but to maintain record grain shipments in the face of greatly reduced supplies of feed grains it will be necessary for the United States to conserve grain in every way possible. This underlines the need for war-stricken countries to increase their own farm production. Our help to them for this purpose has been substantial and will continue. For example, the United States Army in 1947 (calendar year) is supplied fertilizer material containing about 143,000 long tons of nitrogen to the occupied zones of Europe, produced in plants under Army jurisdiction. Nitrogenous fertilizer has gone to other devastated areas, in line with recommendations by the International Emergency Food Council. Exports of farm machinery will increase. Ultimately, this country in farm as well as non-farm business will prosper more surely from restored self-help abroad than from abnormal requirements for relief.

In the fall of 1945 the world estimated a pressing need for about 35,000,000 tons of grain exports. Exportable supplies in sight amounted to only about 25,000,000 tons. By

July 1946, the United States had gathered together and exported 11,747,000 long tons of grain. It had to reduce its production of livestock products, reduce its own consumption of cereals, offer special incentives to the farmers, and deplete its reserve stocks of wheat to the lowest level in two decades—about 100,000,000 bushels. Other exporting countries sharply reduced their supplies. Accordingly, the world entered the 1946-47 crop year with very little grain in reserve. Excellent United States grain crops in 1946, with prospects at the year end that the 1947 wheat crop would be large, enabled the United States to lift its export goal for 1946-47 beyond the expectations, but increased shipments again brought carryover stocks to a very low level.

LIMITATIONS OF U. S. HELP

Against this background United States officials sketched the export prospects. Low carry-over stocks of wheat had a big offset in another record United States wheat crop. Even after allowing for an increase in carry-over stocks to a safer level, it seemed we might still be able to export more wheat than we exported in 1946-47. The wheat export possibility for 1947-48 remained, however, subject to the reduced production for other grains, especially corn. Total grain output of the United States in 1947 was smaller than that of 1946. These facts about the United States position, along with comparable facts from other grain-exporting countries, indicated clearly that avoidance of a third year of intense crisis and suffering in the grain-importing countries would necessitate careful management of rations, along with increased production and collection of grain from their own farms.

The problem of developing production to meet long-term world needs looms larger. World population is increasing by 15,000,000 to 20,000,000 each year, and in the United States and other high-producing countries demand is at a peak that corresponds with employment and wages. People want more and better food than before the war. On the other hand, despite the current pressure on supplies, the prospect of economic surpluses worries producers. Shortage of international exchange in needy countries may inhibit exports and imports, and the recovery of farm production in war-damaged areas that formerly satisfied their own needs will eventually reduce the import demand. In non-food products, the synthetics and other man-made materials disturb old patterns of production, as in the case of rubber and silk, and millions of small producers may find themselves without a livelihood.

RESPONSE THROUGH FAO AND OTHER AGENCIES

The situation is far too complex and difficult for individual nations to attempt to deal with it by themselves; indeed, unilateral action for the benefit of one country may adversely affect other countries and, by increasing international tensions and difficulties, may recoil on the initiator. Economic action is necessary in which the Food and Agricultural Organization, the International Bank, the Monetary Fund, the proposed International Trade Organization, and other appropriate agencies will all play a part and complement one another.

The Food and Agriculture Organization, under the leadership of Sir John Boyd Orr, has been addressing itself to such problems. Chief effort at the moment centers in equipping the organization to deal more effectively with the vast problems it was set up to handle. The Preparatory Commission on World Food Proposals, headed by Lord Bruce and including delegates from 17 countries and observers from many others, met in Washington for three months (October 1946-January 1947) and drew up recommendations primarily—

(1) To establish a Council of FAO (or World Food Council), consisting of official representatives of 18 nations, which would meet at suitable

intervals between the annual sessions of the FAO Conference, keep the world situation under continuous review, and apply policies set by the Conference to current problems; and

(2) To turn the Conference of FAO into a full-scale review of the world situation and outlook in food, agriculture, forestry, and fisheries, at which national programs and plans would be examined annually and mutual adjustments worked out to fit world production more closely to world needs and to reduce economic conflict between nations.

The United States Government proposed amendments to the FAO constitution which would put the Preparatory Commission's recommendations into effect.

In effect, the Preparatory Commission proposals are a modified version of those made by Sir John Orr in 1946. Whereas Sir John had suggested the setting up of a World Food Board with funds and authority to establish world stocks of major agricultural commodities and mitigate violent price fluctuations by direct buying and selling, the new proposals would leave actual operations in the hands of governments.

Agricultural missions from the United States have visited countries of the Western Hemisphere, of the Middle East, and of the Far East. Sent in every case by invitation, the missions have consulted with the foreign agricultural authorities, made agricultural tours and surveys, recommended research projects, suggested lines of action for agricultural improvement, and in some cases offered programs for necessary administrative organization and procedure. Also, the missions have indicated ways in which the governments of the countries visited might collaborate more or less permanently with the Government of the United States, and have suggested what projects, personnel, facilities, and organizations would help. Some missions have suggested action programs to cope with emergencies. Usually the missions have drawn on trained agricultural personnel from state agencies and from private industry as well as from the Federal agencies.

AGRICULTURAL MISSIONS TO FOREIGN COUNTRIES

Altogether, over a number of years, 17 agricultural missions from the United States have visited American countries. They have completed surveys in Bolivia, Colombia, Ecuador, Haiti, Mexico, Nicaragua, Paraguay, Peru, and Venezuela. Missions are now in Colombia and Panama. After the Second World War, this country sent an agricultural mission to the Middle East. It visited Egypt, Lebanon, Iraq, and Saudi Arabia, and drew up recommendations in cooperation with local experts and authorities. Chiefly, the recommendations looked toward the improvement of agricultural practices, the provision of more healthful diets to low-income groups, and the raising of living standards in general.

Similar missions visited China and the Philippines. Jointly with members appointed by the host governments, both studied long-range as well as immediate agricultural problems and made recommendations for a comprehensive national agricultural program and the services required to implement it, keyed to practical possibilities. Besides the mission, some individual technicians from the United States visited China by invitation of the Chinese authorities and studied special problems, for example, the problem of designing the proposed gigantic Ichang Dam and power plant on the Yangtze River.

Conversely, the United States has invited foreign agricultural scientists, economists, and other technicians to study problems of production, marketing, and so forth in the United States. There is a double benefit. The visitors often throw a fresh light on American problems and simultaneously they learn from us. Such cooperation among the United States, the United Kingdom, France, and The Netherlands brought a wide range of knowledge and experience to bear on agricultural problems in the Caribbean area. The Bureau of Reclamation accepted sponsored visitors who wished to study irrigation; it also accepted some foreign engineers for in-service training. Training programs for foreign students of agricultural science and economics have been under way in the United States for several years under the direction of the Office of Foreign Agricultural Relations in cooperation with other governmental agencies both Federal and state and in cooperation also with foundations and private institutions.

Our agricultural cooperation with other countries includes an important program started in 1942 by the Institute of Inter-American Affairs. This agency is a corporation of the United States Government, founded especially to assist other American republics in alleviating agricultural hardships caused by the war. In each country aided it established a special Inter-American Cooperative Service, financed and also staffed by the United States Government and the host government. The two governments adopted cooperative programs and administered them jointly, usually under the direction of the chief United States technician. Projects have been completed in land utilization, livestock and pasture management, food storage and distribution, home improvement and nutrition, and training and education. The countries aided include Brazil, Paraguay, Peru, Venezuela, Costa Rica, El Salvador, Haiti, Honduras, and Panama.

FOOD CONSUMPTION IN THE UNITED STATES

Since 1940, civilians in the United States have eaten more and better food than before the Second World War, though this country has sent enormous quantities of food abroad, and has experienced shortages of manpower and of farm machinery and other agricultural supplies. In 1944, when the war effort was at its peak, civilian consumption in the United States, though about 10 per cent above the pre-war average, accounted for only about 80 per cent of the food disappearance. The remainder went in the proportion of about 12.7 per cent to the United States military forces and 7.7 per cent in lend lease and other exports. This was possible because the food output was about one-third above the pre-war level. Food supplies of civilians in the United States are continuing at the high level reached in 1946; they will probably hold there into 1948, even with food shipments abroad maintained at a high rate.

Average supplies of most nutrients for United States civilians should be almost as high throughout 1948 as they were in 1946. Possibly the per capita consumption of fluid milk and cream will decline a little, with some small resulting decrease in calcium and riboflavin. Supplies of carbohydrates will be slightly larger, especially in the form of sugar. Supplies of thiamine, riboflavin, niacin, and iron will remain high as a result in part of the continued enrichment of grain products with these nutrients. It is not yet possible to forecast 1948 supplies of vitamins A and C, since these depend considerably on the production of fruits and vegetables, but we know that since 1935-39 the consumption of leafy, green, and yellow vegetables, and of citrus fruit and whole milk, has increased substantially. There is no reason to suppose it will fall off.

Yet nutrition can not be gauged exclusively from data on nutrients available. Such data are national averages, subject to very unequal distribution. Supplies adequate enough, when viewed as averages, do not prove that everyone has enough to eat. Satisfactory averages give no assurance that all groups, in all sections of the country, at all income levels, and at all seasons, can have good diets. Probably the distribution of the food supply was more even during than before the war. In the war years, unemployment was absent and price controls, rationing, and other controls were in effect. It may be less even now. Nationwide data for various groups within the population are wanting, but reduced evenness in distribution is to be expected from the termination of rationing and from the removal of price-controls, with resulting rise in living costs.

The nutritive value of the United States food supply from 1935 to 1945 rose from the low levels characteristic of a depression period to the high levels characteristic of full production and relatively higher consumer purchasing power. Nevertheless, even in 1945 some of the nation's families had less of various nutrients than the average which the aggregate food supply would afford. How far below the average some families were is shown in studies made in two states in the summer of 1945.

In one of the low-income counties studied, half of the families had diets rated unsatisfactory. Their diets furnished less than two-thirds of the recommended allowances of the National Research Council for calories and for eight specified nutrients. Calcium, vitamin A, and ascorbic acid content of the diets of the Negro farm families studied was 125 per cent of the recommended allowance, yet 43 per cent of these families failed to get as much as the allowance, even in the summer months. In fact, in this sample of families, about twice the recommended allowance as a group average for a nutrient appeared necessary to insure that practically every family would be getting at least the allowance. When the average value for most nutrients was about 150 per cent of the recommended allowance, almost every family diet contained at least ⅔ of the allowance.

It has been proposed that in planning the distribution of world food supplies a margin of 15 per cent be allowed to cover maldistribution. These data on dietary levels of Negro families suggest that this might be insufficient. At the level of 115 per cent of the average, 40 per cent or more of the diets were unsatisfactory in the various dietary factors.

U. S. WHEAT IN THE WORLD FOOD SITUATION

Carry-over stocks of wheat in the United States declined to a low level —83,000,000 bushels on July 1, 1947, but the tremendous 1947 wheat crop made this not dangerous. In fact it was possible in late 1946 to drop restrictions on the domestic use of wheat. A War Food Order, effective March 1, 1946, which required 80 per cent extraction of wheat flour as compared with the normal rate of about 72 per cent, became inoperative Sept. 1, 1946. Shortly afterward the Department of Agriculture suspended limitations on the quantity of flour and wheat food produced for domestic distribution. Such limitations had been in effect since April 1, 1946.

Significant changes occurred during 1946-47 in the exportation of wheat and flour. The most important were discontinuance of UNRRA and an increase in shipments of wheat, including flour, to the occupation zones. Exports of wheat and flour by UNRRA in the marketing year totaled 56,000,000 bushels or 35 per cent less than in the preceding year. On the other hand shipments by the military authorities for civilian relief overseas (including United Kingdom Zone, Germany) totaled about 119,000,000 bushels or an increase of about 42 per cent. Exports to "paying countries" were about 222,000,000 bushels, about the same as in 1945-46. When active UNRRA operations supported by donations from member nations ceased May 31, 1947, the task of supplying deficit countries fell increasingly upon the United States.

Wheat prices to United States growers for the 1947 crop have been about those of 1946-7, when they averaged $1.91, the highest since the 1919 average of $2.16. Accordingly, growers expected to seed about as much land to wheat for the 1948 crop as they did for that of 1947. With the foreign demand larger, another large United States crop is desirable. Prices in 1948 with just average yields should again be above the support levels. Above-average yields on the expected large acreage might put some pressure on the price supports. Price support at 90 per cent of parity will apply to the 1948 crop until Dec. 31. Thereafter support at that level will give place to other arrangements. Existing law provides for loans beyond 1948 at from 52 to 75 per cent of parity.

FAVORABLE POSITION OF COTTON

The favorable position of cotton is a result largely of the war and its aftermath, and it poses problems which may become pressing within a very few years. Cotton is responding now to certain influences of an obviously temporary character. Export demand, for example, has been strengthened in the last two years by the wartime depletion of cotton stocks in many cotton-manufacturing countries. Simultaneously, the United States demand for raw cotton is very high.

Among the causes are the wartime and early post-war reduction of cotton textile inventories, the high level of American buying power, large exports of cotton textiles to meet war-created shortages abroad, and the continuing general scarcity of other goods that otherwise would compete vigorously for the consumer's dollar. Thus, durable goods such as housing are difficult to get. Moreover, some factors on the supply side tend to keep production of American cotton from catching up with disappearance. Labor is relatively scarce and expensive in the cotton fields; moreover, other farm enterprises have been giving favorable returns. In consequence the acreage in cotton has been exceptionally small, and the domestic disappearance (consumption and exports) has greatly exceeded production during the past two seasons.

Two of the smallest United States crops in 50 years, in combination with some recovery in exports and a continued high domestic consumption, reduced the domestic carry-over by 8,600,000 bales in the two years ended July 1947. Cotton textile mills in the United States used more cotton in the 1946-47 season than in any other peacetime year; they used 45 per cent more than the 1935-39 average. Need for cotton goods throughout the world was almost as urgent as the need for foods, and exports of domestic textiles increased to record levels, thus contributing to the high consumption. Also, the government continued, up to Feb. 13, 1947, to make export payments on raw cotton at the rate of 4 cents a pound, and at lower rates since that date. It took other steps to dispose of American cotton in foreign countries, among them Germany and Japan. Cotton benefited as well from the fact that the production of synthetic fibers in foreign countries was much below the level of the early war years.

THE TOBACCO PROBLEM

Production of tobacco in the United States in 1947 may run a little above 2,000,000,000 pounds. It will be smaller than the record crop of 1946, but well above the pre-war average. Consumption in the United States continues far above the pre-war level. Output of cigarettes in the year ended June 30, 1947 was about 360,000,000,000, as compared with 332,000,000,000 in the preceding 12 months and an annual average of 169,000,000,000 before the war. Cigarette consumption reached its new high despite an increase in prices; the number of cigarette smokers increased, and also the consumption per person. Cigar consumption was moderately higher than in 1945-46 and higher than in pre-war years, though toward the end of the fiscal year it declined. Consumption of chewing and pipe tobacco declined during most of the year and was well below the pre-war and war years. Snuff consumption fell below the level of 1945-46 but remained higher than before the war.

Naturally, with a progressively restricted export market the prevailing high level of tobacco production causes some uneasiness. Europe, the traditional market for American-grown tobacco, took in pre-war years almost 74 per cent of the unmanufactured tobacco exported from the United States. Its ability to continue taking our tobacco will decisively influence our production. Most of the tobacco produced on American farms in 1947 will be subject to marketing quotas authorized under the Agricultural Adjustment Act of 1938, as amended. Currently, however, the acreage allotments are high, with most growers producing to the authorized limit. With export supplies backing up, it would not be feasible to maintain production at so high a level.

Growers may store their surpluses under government non-recourse loans, but if tobacco continues to pile up in excess of domestic requirements, the benefit of that operation can be only temporary. In that event the tobacco growers must have either a larger market, a smaller production, or some combination of the two. The best solution is a larger market, but that means chiefly a larger export market, because our tobacco crops for several years now have greatly exceeded the domestic disappearance, though that is growing.

DAIRY PRODUCTION AND DAIRY INCOME

Besides meeting an increased domestic consumer demand and providing for all United States military requirements, our milk production near the wartime peak of 121,000,000,000 pounds provided also for a considerable export movement. Shipments of dairy products to foreign countries were the equivalent of 3,500,000,000 pounds of milk. They went to occupied and other areas for relief purposes. Production was also sufficient to restore stocks of cheese, evaporated milk, and to some extent butter for domestic distribution. In the United States, civilian consumption of dairy products was about 810 pounds (milk equivalent, butterfat basis). This was nearly 2 per cent above the average of the five war years 1941-45 and about 1 per cent above the pre-war (1935-39) average of 801 pounds. Moreover, continued heavy sale of whole milk from farms permitted an increase in the supply of non-fat milk products for both domestic and export needs.

Cash income from farm sales of milk, cream, and butter in 1947 was about the same as the $4,117,000,000 received by dairymen in 1946 from markets plus dairy production payments. The return from marketings in 1946 was $3,716,000,000 and the return from dairy production payments was $401,000,000. Farm marketings in 1947 were only moderately greater in volume than the 98,600,000,000 pounds of milk (equivalent) sold the previous year. The total income from dairy production was about the same in the two years, despite the elimination of the dairy production payments in mid-1946, because dairy prices were substantially higher during part of 1947 than during the corresponding period of 1946.

LIVESTOCK AND MEATS

The removal in late 1946 of price controls and of most other wartime regulations led to marked readjustments in the livestock industry, in the meat price structure, and in the marketing, processing, and distribution of livestock and meats. Export and import controls affecting livestock and meats continued in 1947. Domestic consumer demand for meats once more operated under competitive conditions, and distribution of livestock products throughout the country tended to return to normal patterns. Demand was much stronger than had been generally expected; it reflected high incomes and purchasing power of consumers. The disposable income per capita in 1947 was more than double that of 1939, and lower income groups received a larger share of the total income than before the war, with the result that these groups competed keenly for consumer goods.

Meat prices at retail rose to a new all-time high, though the available supply of meat per capita was considerably greater than in pre-war years. Prices in 1947 up to August were about 103 per cent above the average of 1937-41, and 72 per cent above the wartime ceiling prices of

1945-46. Livestock prices reached new record levels. Hog prices made the greatest relative advance, rising to nearly four times the 1939-40 level. Cattle prices rose to more than double those of 1939-41, and unusually large numbers of cattle and calves moved to market. Marketings were large in relation to the number of cattle on farms, and the total slaughter of cattle and calves exceeded that of any other year.

READJUSTMENT IN THE POULTRY INDUSTRY

The poultry industry made progress in readjustment of peacetime conditions. In the fiscal year 1947, supplies of poultry products were adequate, except in the short period during which price ceilings were restored under the amended Price Control Act at June 30, 1946 levels. This legislation exempted certain items, among them poultry and eggs and poultry and egg products. Since other livestock products, especially meats, were then scarce, the prices of hens, chickens, turkeys, and eggs rose sharply. On Oct. 15, 1946, administrative orders removed price ceilings from all livestock and livestock products, and thereafter the prices of chickens and turkeys declined considerably; egg prices declined though not to the same extent. By early 1947, prices of turkeys and also of eggs had declined to a level that required price-support programs. Under peacetime conditions the poultry industry, like other branches of agriculture, often has problems of surpluses; poultrymen experienced this aspect of "normality" in 1947.

U. S. POSITION IN FATS AND OILS

As in most branches of agriculture the position of the United States was relatively favorable in fats and oils. Consumption per capita improved over that of 1946. Action by the Department of Agriculture overcame a shortage of drying oils. Production in 1946 was insufficient for domestic needs, and imports of flaxseed for crushing were unobtainable, while linseed oil was available only at a high price and in a very limited quantity. The Department assured United States growers a price of $6 a bushel for flaxseed grown in 1947. The response indicated an adequate supply for the coming year and made our industry independent of foreign supplies. Production of peanuts and likewise of soybeans continued in excess of domestic requirements. Exports of peanuts and soybeans, either as oil or as seed, account for only a small proportion of the output. An output above the domestic need is desirable, however, both to guarantee an adequate domestic supply and to alleviate world needs.

FARM INCOME

Farm income in 1947 was the highest on record. Cash receipts from farm marketings were about $29,700,000,000, 21 per cent above 1946, the previous record year. Government payments, however, totaled only about $350,000,000, less than half of 1946, and total cash receipts, including government payments, may reach $30,000,000,000, 18 per cent over 1946. The difference between the government payments in 1947 and 1946 was due largely to the discontinuance of production-payment programs for dairy products, beef cattle, and sheep on June 30, 1946. In general, the gain in receipts from farm marketings in 1947 was due to a substantial increase in prices, with most of the gain occurring in the first half of the year compared with 1946. Cash receipts from livestock and products are up to about 23 per cent, crops about 19 per cent.

Cash receipts in 1947 were higher than in 1946 for all the important commodity groups except fruit and nuts. Wheat, corn, cotton, hogs, and cattle showed significant gains. Wheat made the greatest percentage increase of any of the major commodities. Relatively high prices were paid for the record wheat crop, and total receipts from wheat seemed likely to be as much as 75 per cent above 1946. Higher prices of corn, plus larger sales the spring of 1947, from the large 1946 crop are more than enough to offset smaller marketings in the latter part of 1947, and total receipts for the year may be about one-third above 1946. Receipts from meat animals increased sharply largely because of higher prices. Cash receipts from hogs and cattle were up about 40 per cent and 35 per cent, respectively.

Production expenses in 1947 are about 16 per cent above 1946, when they amounted to slightly over $14,000,000,000. This was the largest percentage gain over the previous year since 1942. Increasing prices for nearly all commodities and services used in farm production were the principal reason for higher total costs.

COTTON, GRAIN, AND OTHER FIELD CROPS

By Paul L. Koenig
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GENERAL

All-crop production in 1947 was only slightly below the average of the best five years in the nation's history. Only in 1942, 1944, and 1946 was the all-crop outturn larger. The corn crop was disappointingly small, but the generally high level of production of most other crops, particularly food and oil crops, held the volume up. The aggregate volume of all crops was 120 per cent of the 1923-32 average used as a base, 6 points below the record set in 1946, but less than 2 points below the 1942-46 average. The highest indexes before 1942 were 112 in 1937 and 110 in 1941.

The total harvested acreage for 52 important crops was 348,355,000 acres, one per cent more than in 1946. With the exception of 1944, this acreage is the largest since the 1928-32 period when totals ranged from 351,000,000 to 362,000,000 acres. Yields per acre for many crops were above average, although below the high level of 1946, and only a few were below average. As a result the composite yield of all crops was 129 per cent of the 1923-32 average, compared with 134 in 1946 and the peak of 136 set in 1942.

The 1947 production of four food grains is the largest of record, totaling about 43,636,000 tons. Contributing to this were record crops of wheat and rice, an above-average crop of buckwheat, and a rye crop only two-thirds of average. Feed grains totaled about 96,060,000 tons, compared with 124,253,000 tons in 1946. Corn and barley were below average crops, but oats and sorghum grain were above average. Oilseeds totaled nearly 12,400,000 tons in 1947, compared with about 11,200,000 tons in 1946. Soybeans contributed the largest tonnage to this total, but production was less than in 1946. Cottonseed production considerably larger than in 1946, the third largest flaxseed crop, and the largest peanut crop of record helped to swell the total. An abundance of hay—102,500,000 tons—2 per cent more than the ample 1946 crop, was harvested in 1947.

COTTON ACREAGE

The 21,387,000 acres of cotton in cultivation in the United States on July 1, 1947 was 3,197,000 acres or 17.6 per cent more than the 1946 planted acres. Despite this substantial increase over 1946, the 1947 acreage was 12.8 per cent below the 10-year (1936-45) average and was less than half as large as the peak of 45,968,000 acres planted in 1925.

The increase in acreage was general throughout the Cotton Belt. However, nearly two thirds of the total increase occurred in Texas where the 1947 planted acreage was 33 per cent higher than in 1946. Other states for which increases of over 25 per cent were reported are Missouri, Florida, and the three far western states. Acreage in Alabama, Mississippi, and Oklahoma remained about the same as in 1946.

Abandonment of acreage in cultivation on July 1 of 1.1 per cent left 21,148,000 acres for harvest, compared with 17,615,000 acres in 1946. Percentage abandonment was well below the 10-year average of 1.9 per cent (excluding cotton plowed up for AAA compliance) and was less than in any year since the early 1930's. In Alabama, Louisiana, and Texas, percentage abandonment was particularly light, about half of average. Above-average abandonment, however, occurred in Missouri and in New Mexico.

American Egyptian cotton in cultivation on July 1, 1947 was 1,300 acres, again less than half of the previous year's acreage and less than one per cent of the peak of 193,000 acres grown in 1942.

COTTON YIELD

Lint yield in 1947, computed at 265.4 pounds per harvested acre, was 30 pounds above the preceding year and 15 pounds above the 10-year average. It was the fourth highest yield on record being exceeded only by 1937, 1942 and 1944. The California yield was the highest ever recorded except for 1940. Yields in Alabama and New Mexico have been exceeded only twice. The Texas yield was but two pounds lower than the 1937 yield which was the highest since 1912. Louisiana produced almost twice as much cotton per acre in 1947 as the near record low of 1946 but this yield has been exceeded six times in recent years.

COTTON PRODUCTION

The 1947 cotton crop of 11,694,000 bales of 500 pounds gross weight was 3,054,000 bales, or 35.3 per cent, larger than the small production of 1946 but almost 700,000 bales less than the 1936-45 average. Louisiana and Texas more than doubled their 1946 production and all other states except South Carolina, Tennessee, and Arkansas produced as much or more cotton than in 1946. However, the 10-year average production was exceeded only by Texas and the three far western states. Production in California hit a record high of 760,000 bales, 22,000 bales larger than the bumper crop of 1937. In New Mexico and Arizona, the production was exceeded only by 1937 and in Texas production was the highest since 1933 except for 1937.

In Texas, Arkansas, and Louisiana, weather was generally favorable at planting time. In Oklahoma excessive early spring rains held the acreage in check. East of the Mississippi River frequent rains interfered with planting, and periods of unseasonably cool weather prevailed through late June, delaying germination and retarding early growth. Cool weather continued through late July, especially in the Central and Eastern Belts, and the weevil population increased rapidly. During August and early September, however, dry soils and high temperatures checked weevil damage and hastened maturity of the crops in most areas. Heavy weevil damage continued in south Georgia, south Alabama, and the eastern Carolinas. Severe drought and a prolonged period of high temperatures materially reduced earlier production prospects in Arkansas and caused excessive shedding and some premature opening in Texas and Oklahoma. In northwestern Texas, subsoil moisture at the beginning of the season was very favorable, and a record crop was produced even though virtually no rain fell from planting to harvesting. Except in the Carolinas, weather was generally favorable for harvesting the crop.

VALUE OF COTTON PRODUCTION

The combined preliminary value of cotton and cottonseed of $2,234,485,000 is the second highest on record, exceeded by the crop of 1919 by about 5 per cent. The value of the 1947 crop is 34 per cent higher than for the previous year's crop. Of the

COTTON ACREAGE, YIELD, AND PRODUCTION

State	Acreage of Cotton in Cultivation July 1			Acreage Harvested			Lint Yield Per Harvested Acre			Production (Ginnings)[1] 500 lb. Gross Wt. Bales		
	Average 1936–45	1946	1947 (Prel.)	Average 1936–45	1946	1947 (Prel.)	Average 1936–45	1946	1947 (Prel.)	Average 1936–45	1946	1947 (Prel.)
	Thousand Acres			Thousand Acres			Pounds			Thousand Bales		
Missouri	404	318	440	398	310	431	439	473	355	365	307	320
Virginia	39	20	24	38	20	24	332	404	360	26	17	18
North Carolina	842	576	627	828	570	619	348	370	341	597	440	440
South Carolina	1,246	963	1,064	1,226	960	1,060	301	348	290	765	697	640
Georgia	1,883	1,217	1,298	1,854	1,210	1,290	238	221	246	917	557	660
Florida	65	20	26	62	20	25	161	147	192	20	6	10
Tennessee	736	625	696	725	620	690	352	402	358	528	520	515
Alabama	1,918	1,545	1,550	1,889	1,530	1,545	259	258	291	1,003	822	935
Mississippi	2,646	2,349	2,348	2,582	2,220	2,320	331	226	322	1,787	1,047	1,555
Arkansas	2,120	1,729	2,070	2,069	1,700	2,037	325	361	297	1,394	1,281	1,260
Louisiana	1,127	833	872	1,102	800	864	276	148	281	639	247	505
Oklahoma	1,832	1,074	1,079	1,739	1,020	1,050	158	123	148	568	262	325
Texas	8,937	6,283	8,365	8,620	6,000	8,273	168	134	195	3,021	1,669	3,360
New Mexico	118	120	151	116	119	146	477	573	525	115	142	160
Arizona	215	145	226	214	145	225	415	521	468	186	158	220
California	367	359	536	362	358	534	586	613	682	442	458	760
Illinois, Kansas and Kentucky	21	14	15	21	13	15	407	381	351	18	10	11
UNITED STATES	24,517	18,190	21,387	23,845	17,615	21,148	250.6	235.3	265.4	12,390	8,640	11,694
American Egyptian[2]	70.7	3.1	1.3	68.9	3.1	1.3	250	394	381	32.1	2.5	1.0

[1] Allowances made for interstate movement of seed cotton for ginning.

[2] Included in state and United States totals. Grown principally in Arizona, New Mexico, and Texas.

combined value $1,829,506,000 is for lint and $404,979,000 is for cottonseed computed at preliminary prices. The average price to Dec. 1 of lint is 31.30 cents per pound, 1.34 cents less than in 1946 but higher than for any other crop since 1919. For the second consecutive year, a new record high has been set for cottonseed prices. The preliminary price of $85.40 per ton for cottonseed is $13.50 above the 1946 price. The value of cotton lint placed under government loan and unredeemed at the end of the crop marketing season is included in the above value at average price. On Aug. 1, 1947, only 5,000 bales, of the 142,000 bales of the 1946 crop placed under loan, had not been redeemed. Prior to Dec. 1, loans had been made on 175,000 bales of the 1947 crop.

WHEAT

Wheat production in 1947 exceeded 1,000,000,000 bushels and established a new record for the fourth consecutive year. Production totaled 1,364,919,000 bushels, 18 per cent more than in 1946. The spring wheat crop was one-fourth larger than average; the winter wheat crop was the largest of record by a wide margin.

Supplies of wheat for the 1947-48 season—about 1,448,592,000 bushels—were exceeded in only two other seasons, 1942-43 and 1943-44. In those seasons the carry-in stocks were over 600,000,000 bushels, whereas only about 83,673,000 bushels were carried over into the current season to bolster the record new production. Disappearance of wheat in the 1946-47 season, nearly 1,170,000,000 bushels, was relatively large and reduced carryover stocks to one of the lowest points of record, but still was not up to the record disappearance in the previous season. Of this total, about 492,300,000 bushels were processed for civilian and military food uses, about 87,500,000 bushels were used for seed, less than 50,000 bushels for industrial uses, about 189,400,000 bushels were fed to livestock and poultry, and 400,300,000 bushels exported. These exports were the largest of record, but it is hoped to exceed them out of the current supply. With food use estimated at 510,000,000 bushels, seed at 88,000,000 bushels, industrial use negligible, and about 250,000,000 bushels to be fed to livestock and poultry, about 600,000,000 bushels will be available for export and carryover.

This was an outstanding year for wheat, especially for winter wheat. Growers planted the largest acreage since 1938 in response to the world demand, favorable prices, ample soil moisture, and excellent planting conditions. Of the 77,947,000 acres planted to wheat, acreage losses were very low, and 74,186,000 acres were harvested, the most for any year of record. Harvest began later than usual because cold, wet weather delayed maturity, and wet fields prevented operation of combines, but when started, harvest progressed rapidly, taxing labor, machinery, and transportation facilities. Much wheat was piled on the ground temporarily and later moved to cover with a minimum of loss.

Nine states had record-breaking wheat crops in 1947, among them such heavy producing states as Kansas, Oklahoma, Texas, and Colorado. Kansas alone produced 21 per cent of the nation's total and was followed in rank by North Dakota, Texas, Oklahoma, Nebraska, Washington, Montana, Colorado, South Dakota, and Ohio. These 10 states accounted for over three-fourths of the total.

Ranking second in value among American crops, wheat in 1947 is valued at $3,288,905,000, compared with $2,203,246,000 in 1946. Value is computed at the preliminary season average price of $2.41 per bushel for the 1947 crop and $1.91 for the 1946 crop. These season average prices represent prices received by farmers for the portion of the crop sold, usually 75 to 85 per cent of the wheat produced. When such prices are applied to total production, the computed values afford a measure of the relative importance of each crop in the agricultural economy.

GRAIN CROPS—UNITED STATES

Crop	Acreage Harvested			Yield per Harvested Acre			Production		
	Average 1936–45	1946	1947	Average 1936–45	1946	1947	Average 1936–45	1946	1947
	Thousand Acres			Bushels			Thousand Bushels		
Wheat									
Winter	40,684	48,350	54,780	16.1	18.0	19.5	653,893	870,725	1,067,970
Durum	2,458	2,453	2,925	13.1	14.6	15.0	31,847	35,836	43,983
Other Spring	13,895	16,272	16,481	14.6	15.1	15.3	204,566	246,485	252,966
All wheat	57,036	67,075	74,186	15.6	17.2	18.4	890,306	1,153,046	1,364,919
Rye	3,164	1,607	2,022	11.9	11.7	12.8	37,934	18,879	25,977
Rice	1,239	1,574	1,677	47.4	45.9	47.3	58,220	72,216	79,345
Buckwheat	415	391	518	16.8	18.2	14.2	6,954	7,124	7,334
Corn, All	90,083	88,489	83,981	29.4	36.7	28.6	2,639,102	3,249,950	2,400,952
Oats	37,101	43,205	38,648	31.2	34.7	31.5	1,161,282	1,497,904	1,215,970
Barley	12,407	10,411	10,947	22.9	25.2	25.5	287,360	262,258	279,182
Sorghum Grain	5,823	6,773	5,606	15.2	15.8	17.1	92,124	106,941	95,609
Beans, Dry[1]	1,833	1,616	1,759	889	981	976	16,312	15,859	17,164
Peas, Dry[1]	386	498	520	1,220	1,357	1,252	4,870	6,758	6,513
Soybeans for Beans	6,418	9,806	11,125	18.2	20.5	16.3	117,886	201,275	181,362
Flaxseed	2,807	2,432	4,026	8.5	9.3	9.9	25,030	22,585	39,763
Hay, all[2]	72,373	74,173	75,291	1.30	1.36	1.36	94,490	100,739	102,500
Popcorn[3]	110	155	81	1,371	1,637	1,194	151,152	253,092	96,395

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[1] Yield of dry beans and peas is expressed as pounds per acre and production as thousand bags of 100 pounds, each, uncleaned.
[2] The unit of yield and production of hay is tons.
[3] The unit of yield and production of popcorn is pounds of ear corn.

WINTER WHEAT

The 1947 winter wheat crop of 1,067,970,000 bushels is the first to top the billion-bushel mark. This record production resulted from the largest planted and harvested acreages in history and a yield per acre equaling the best. Of the 58,068,000 acres sown, 54,780,000 acres were harvested, with the abandonment of 5.7 per cent, the lowest since 1931. The yield per acre was 19.5 bushels, compared with 18 in 1946 and an average of 16.1 bushels.

Soil moisture and weather conditions in the fall of 1946 were almost ideal for seeding. In only Alabama, Arkansas, Iowa, Washington, and Oregon—was a smaller acreage planted than a year before. Germination and stands were good. Growth was strong and vigorous and, before going into dormancy, excellent pasturage was available for lambs and cattle. Losses from winter killing and wind erosion were lighter than usual, but floods caused abandonment in local areas of Illinois, Iowa, and Missouri. Large volunteer acreages were left for harvest in Kansas, Texas, and Oklahoma. Spring weather was mostly favorable and cool, wet weather resulted in well-filled heads, though delaying harvest. The top-ranking states of Kansas, Texas, Oklahoma, Nebraska, and Colorado produced almost 62 per cent of the total winter wheat crop on about 65 per cent of the total acreage. Their 661,492,000 bushels in 1947 exceeded the 1936-45 average for the entire country. The next states in rank as to production were Washington, Ohio, Indiana, Michigan, and Illinois.

SPRING WHEAT

The spring wheat crop of 296,949,000 bushels, about one-fourth above average, includes 43,983,000 bushels of durum and 252,966,000 bushels of other spring wheat. More durum wheat than in 1946 was harvested in all three durum wheat states, totaling 2,925,000 acres or nearly one-fifth more than in 1946. This acreage was in an area where conditions were fairly favorable, and the yield of 15 bushels exceeded the 14.6 in 1946 and the average of 13.1 bushels. The 16,481,000 acres of other spring wheat was only slightly more than in 1946, the planting difficulties due to the late, wet spring resulting in some shift to durum wheat and flax, which could be sown later. Yields were adversely affected by a late May freeze and summer heat, but the favorable moisture situation carried the crop through to a fairly good yield of 15.3 bushels per acre, slightly above that of 1946 and average. The harvesting season was favorable and abandonment was unusually light.

RYE

An upturn in rye production occurred in 1947, following declines for several years which had brought 1946 production nearly down to the low level of the drought year 1934. The 25,977,000 bushels produced was 38 per cent more than in 1946, but still nearly one-third below the 1936-45 average. Diversion of the planted acreage was 46 per cent of the 1947 total, compared with 53 per cent in 1946. Thus the acreage harvested was larger than 1946 and the yield of 12.8 bushels per acre was also above that of 1946 and the average. Rye was harvested from 2,022,000 acres.

South Dakota regained the lead as the chief rye-producing state, with North Dakota second. Nebraska dropped to third place after leading for two years, as the May freeze and hail storms in July took a heavy toll. More than three-fourths of the nation's rye crop is annually harvested in the North Central States. At the preliminary season average price of $2.43 per bushel, the 1947 rye crop is valued at $63,180,000, compared with $1.92 per bushel and a total of $36,169,000 in 1946.

Stocks of rye in all positions, on July 1, 1947, were only 2,346,000 bushels, slightly above the extremely low level of a year before. Added to the new crop, this results in a supply of 28,323,000 bushels for the 1947-48 season, compared with 21,156,000 bushels for the 1946-47 season, which were augmented by imports of about 1,500,000 bushels. In 1946, about 5,500,000 bushels of rye were used for food, 5,200,000 bushels for feed, 4,700,000 bushels for seed, 4,200,000 for alcohol and spirits, with about 600,000 bushels exported. In the previous season, a record 7,200,000 bushels were exported. With demands for feed increased because of the short corn crop, the quantity for export is likely to be small in this season. Slightly more rye acreage was seeded in the fall of 1947 for 1948 harvest than was sown in the fall of 1946 for 1947 harvest.

RICE

The expanded level which rice production has attained in recent years was exceeded in 1947 when 79,345,000 bushels were harvested, 10 per cent more than the previous record set in 1946. Record acreages were planted and harvested with abandonment negligible. The yield of 47.3 bushels per acre, while higher than in 1946, is not quite up to the average of 47.4 bushels.

Of 1,687,000 acres planted, 6 per cent more than in 1946, only 10,000 acres were abandoned and 1,677,000 acres were harvested. The increase was all in the southern area, for California acreage was curtailed by limited irrigation water for rice. In the southern area, the early season for seeding was favorable, and the crop made a good start. Irrigation water became short in Louisiana, and a tropical storm in September flattened much of the late rice there and in Arkansas. In California, most of the acreage reduction was in low-producing areas. Relatively high yields resulted from a favorable growing and harvesting season, so that production was slightly above that of 1946, the previous record for the state. Production in the southern area was 61,485,000 bushels; in California 17,860,000 bushels.

The 1947 rice crop was sold at an average of $2.71 per bushel, at which price the total production was valued at $215,081,000, compared with $2.25 per bushel and $162,726,000 in 1946.

BUCKWHEAT

A buckwheat crop of 7,334,000 bushels, 3 per cent more than in 1946 and 5 per cent above average, was harvested in 1947. A relatively large acreage was planted to buckwheat, for it is used in many areas as a catch-crop when conditions have been unfavorable for planting earlier-sown crops, as was true in 1947. The 518,000 acres harvested were nearly one-third more than in 1946 and one-fourth above average. The yield was only 14.2 bushels per acre, compared with 18.2 in 1946 and the average of 16.8 bushels. Much of the planting was late, which made the crop susceptible to both the excessive heat which blasted blooms in some areas and the early freezes which killed immature fields in parts of New York, Pennsylvania, Ohio, and Minnesota.

Valuing the crop at the preliminary season average price of $1.97 for the portion sold, 1947 production of buckwheat was worth $14,484,000, compared with $1.48 per bushel and $10,517,000 in 1946.

FEED GRAINS

The relatively small tonnage of feed grains produced in 1947 was a disappointing factor in the agricultural economy. The total of 96,060,000 tons of corn, oats, barley, and sorghum grains is nearly 23 per cent below the record 124,253,000 tons produced in 1946. With the exception of 1939, it is less than in any of the preceding 10 years; however, it is more than in most years prior to 1937. The small total results from below average crops of corn and barley, though oats and sorghum grain were above average.

By far the greater proportion of the total feed grain supply is used for feeding livestock and poultry on farms where grown. Added to that is the quantity sold to other farmers and feeders of livestock and poultry. Thus the proportion reaching commercial users and processors is relatively small, though the demand from this source has increased in recent years. Farmers realize the greater part of the income from the feed grains they produce by way of the livestock they feed these grains to, from sales of dairy and poultry products, meat animals, wool, and other animal products. Bolstered by relatively large carryover stocks of corn and oats, the current feed grain supply on farms provides an average supply per animal unit which, though smaller than in nine of the past 10 years, is larger than in most years prior to 1937. Supplies of hay and roughage are ample and well distributed. As in other years of relatively low feed grain supply, this will be a significant factor in stretching grain supplies and in this will be fortified by relatively large supplies of by-product feeds. Grazing of pastures and crop residues also contributed feed later than usual. It is likely that these factors and the price relationship will tend to hold feeding of wheat to a relatively low level in the 1947-48 season.

CORN

The 1947 corn crop, as the result of adversities from planting to harvest, was the smallest since the drought year 1936. The total of 2,400,952,000 bushels was less than three-fourths as much as produced in 1946 and nearly one-tenth below average. The acreage harvested was the smallest since 1894 and the yield per acre the lowest since 1938. About the usual proportion, 2,153,326,000 bushels or 89 per cent of all corn was harvested for grain, with 6 per cent utilized as silage and 5 per cent as fodder hogged and grazed.

Only 86,168,000 acres were planted to corn, because of unfavorable conditions in the spring, 4 per cent less than in 1946. Of this, 83,981,000 acres were harvested for all purposes, the abandonment being relatively low at about 2.5 per cent. The average yield of 28.6 bushels per acre was eight bushels below that of 1946 and nearly a bushel below average. Hybrids were planted on 71 per cent of the total acreage, on 93 per cent of the Corn Belt acreage. These were a major factor in obtaining production, not only because their superior germination performance under adverse conditions resulted in good stands, but also because farmers could select varieties best suited to the season's widely varying conditions and the length of growing season available. Power machinery enabled farmers to plant swiftly when fields could be worked. Nevertheless the effects of cool, wet, and cloudy weather and floods in the northern corn areas, and cool, dry weather in the southeast, could not be entirely overcome. The net effect was a late-planted crop which faced the hazard of frost damage before maturity.

Mostly favorable weather in July enabled farmers to cultivate fields, and corn made good progress. In the Mississippi Valley, hot, rainless weather continued through most of August, resulting in sharp declines in yield prospects, but rapid development of plants. Some corn was irreparably damaged, some pollinated poorly, resulting in poorly filled ears or barren stalks. Corn moved rapidly to maturity during September, but killing frosts occurred one to two weeks early in northern sections, resulting in some "soft" corn in adjacent parts of Ohio, Indiana, and Michigan. Other areas were not seriously affected, and growing weather continued during October, enabling most of the small crop to mature well and be ready for harvest at about the usual time. But the unfavorable weather had reduced Corn Belt production so that it was only 72 per cent of the total, compared with 79 per cent in 1946. Iowa's crop was only a little over half that of 1946. Record yields were obtained in the southeast, however, and North Carolina had its record crop.

The small 1947 corn crop still was the country's leading crop by a wide margin. Valuing all corn by the average price farmers received for the quantity they sold, $2.35 per bushel, the value was $5,640,283,000 compared with $1.56 per bushel and $5,081,927,000 for the much larger 1946 crop.

Stocks of corn in all positions Oct. 1, 1947 were 285,254,000 bushels, compared with 172,926,000 bushels a year earlier. Total supplies in 1947-48 were thus about 2,439,000,000 bushels, in 1946-47 about 3,124,000,000, in 1945-46 about 2,909,000,000.

OATS

An oats crop about one-fifth less than in either of the two preceding years, but still above average, was produced in 1947. The 1,215,970,000 bushels were harvested from 38,648,000 acres. The 42,501,000 acres planted were 9 per cent less than in 1946. Abandonment and diversion to uses other than grain accounted for 9.1 per cent of the total planted, compared with 7.2 per cent in 1946. The yield of 31.5 bushels per acre was 3.2 bushels less than in 1946 and only slightly above average.

Only 89 per cent of the intended acreage was sown in the North Central region, the main producing area, and only 80 per cent in the North Atlantic region, because of cold, wet weather at seeding time. In the fall-seeding areas the acreage was increased over 1946. Oats could not successfully compete with wheat and flax for acreage in the spring wheat section. The growing season was relatively unfavorable, and disease reduced yields in the north.

The value of the 1947 crop, at the preliminary season average price of $1.03 per bushel, was $1,249,451,000, exceeding the larger 1946 crop at $.81 per bushel and a total of $1,213,755,000. Oats rank fifth in value among 1947 crops.

Stocks of oats in all positions on July 1, 1947 were 276,289,000 bushels, which though less than the 291,712,000 bushels on July 1, 1946, were larger than any other carryover stocks of oats. Adding carryover and new crop, supplies were about 1,492,000,000 bushels for the 1947-48 season, compared with the record 1,790,000,000 bushels for 1946-47.

BARLEY

The downward trend in barley production of the preceding four years was checked in 1947 with a crop of 279,182,000 bushels, 6 per cent more than in 1946, but 3 per cent below average. Not only was the acreage larger, but yields were better than in 1946.

Of 12,030,000 acres sown to barley, 4 per cent more than in 1946, about 10,947,000 acres were harvested. Some barley is sown for hay, particularly in Pacific Coast states. Seeding conditions were adverse in most northern areas, plantings were later, and the growing season less favorable than usual. Nevertheless, the acreage harvested in North Central states was larger than in 1946 and accounted for much of the national increase. In the fall-seeding area ideal seeding weather favored acreage increases, and yields equaled or exceeded those obtained in 1946 in most South Atlantic states. Acreages were also increased in the West, and yields were mostly satisfactory.

At the preliminary season average price of $1.71 per bushel, the 1947 barley crop is worth $476,870,000, compared with $1.36 and $356,657,000 for the 1946 crop.

Stocks of 55,544,000 bushels of barley were carried over from previous crops compared with 58,570,000 bushels on July 1, 1946. Combining these with new production, total supplies were about 335,000,000 bushels in the 1947-48 season, compared with 321,000,000 bushels in the 1946-47 season, both well below the three previous years.

SORGHUM GRAIN

The 95,609,000 bushels of sorghum grain produced in 1947 is the smallest production since 1940, but still is slightly above average. It is 11 per cent less than in 1946. Material expansion of wheat acreage in the Great Plains area, and light abandonment, provided less acreage than usual for replanting to sorghum. Also expansion of cotton acreage in northwestern

Texas reduced the acreage available for sorghum.

Moisture conditions were favorable at planting time, but the weather was hot and dry through the summer and early fall in Great Plains areas. The crop did not deteriorate materially, however. and with favorable conditions before harvest, the yield was better than 1946 and average. The 5,606,000 acres harvested for grain was only five-sixths as large as in 1946 and below average, but this was 48 per cent of the acreage of sorghum for all purposes, a percentage which tends to rise each year as increased proportions of improved combine varieties of sorghum are planted. About 88 per cent of the total production was harvested in Texas, Oklahoma, and Kansas.

In addition to the grain, about 6,070,000 tons of forage and 3,445,000 tons of silage were produced. The acreage harvested for all purposes—grain, silage, forage and sirup—totaled 11,297,000 acres. This was about 2,500,000 acres less than in 1946, with most of the reduction in Texas. Oklahoma, and Kansas.

Sorghum grain, at the preliminary season average price of $1.78 per bushel for the portion sold, was valued at $170,446.000 in 1947, compared with $1.37 and $146,571,000 in 1946.

HAY

Gauged by its value, hay is the fourth crop in importance in our country, following corn, wheat, and cotton. It has ranked as high as second, in 1944. The 1947 hay crop amounted to 102,500,000 tons, nearly 2 per cent more than the ample 1946 crop. This was harvested from 75,291,000 acres, also 2 per cent more than in 1946. Yields both years were 1.36 tons per acre, exceeding the average of 1.30 tons. The season was mostly favorable for hay, aside from late freezes in northern Mountain areas and a dry summer in some Mississippi Valley and southwestern states. In the northeast and southeast, rains interfered with harvest, so that some hay was spoiled, much became coarse and over-mature and was of poor quality.

Of the total production nearly one-third was alfalfa hay, nearly as much was clover and timothy. Of the remainder over 13.000.000 tons were wild hay, nearly 7.000,000 tons lespedeza, about 3,500.000 tons soybean, cowpea and peanut hay, 3,000,000 tons grain hay, and 10,000.000 tons of miscellaneous other kinds. At the season average price of $17.30 per ton received for that sold, the 1947 hay crop was valued at $1.776.272.000, compared with $16.70 and $1,678,505,000 in 1946.

The total hay supply, including a large carryover, totals about 118,500,000 tons, about 10 per cent above average. With fewer livestock on farms. the supply per hay-consuming animal unit was the most liberal of record.

DRY BEANS

Production of 17,164,000 bags (100 pounds) of dry beans in 1947 exceeds that of any year since 1943 and is equivalent to 15,726,000 bags cleaned. About 1,839,000 acres were planted to beans and 1,759,000 acres harvested, each about 8½ per cent more than in 1946. In the west, the season was favorable throughout and yields were good, but in the northeast beans were planted late, also in Michigan, and yields were below 1946. For the whole country the yield was 976 pounds per acre. compared with 981 pounds in 1946 and the average of 889 pounds. At $12.10 per bag the 1947 crop is valued at $190.837.000. compared with $10.60 and $156,550,000 in 1946.

OILSEEDS

Oilseeds totaling nearly 12.400.000 tons were produced in 1947. compared with 11.200.000 tons in 1946 and the average of about 10,200.000 tons. The decrease in soybeans from the high point in 1946 was more than offset by the increase in cottonseed, while the peanut crop was the largest of record and flaxseed the third largest.

Soybeans have been the leading oilseed crop in recent years, outranking cottonseed in tonnage. The 1947 production of 181,362,000 bushels, while 10 per cent below the record 1946 crop of 201,275,000 bushels and the smallest since 1941, is still far above pre-war production and maintains the leading position among oilseeds.

Planted under adverse conditions over most of the soybean area, and delayed until late June or early July, the acreage nevertheless was an eighth larger than in 1946. Dry summer weather lowered yields. But the fall was favorable for maturing and harvesting the beans and the crop was practically all combined by Dec. 1. The yield of 16.3 bushels per acre is the second lowest in a decade, and well below the 20.5 bushels in 1946 or the average of 18.2 bushels. Of the 13,654,000 acres planted to soybeans, 11,125,000 acres or 81 per cent, were harvested for beans, with about 1,372,000 acres cut for hay and 1,157,000 acres used for other purposes.

The 1947 soybean crop, at the preliminary season average price of $3.29 per bushel, is valued at $596,702,000, compared with $2.57 and $516,387,000 for the larger 1946 crop. Stocks of only 5,354,000 bushels remained in all positions on Oct. 1, 1947, which, with new production, provides a supply of less than 187,000,000 bushels for the 1947-48 season. In the 1946-47 season the supply was nearly 206,000,000 bushels, of which over 170,000,000 bushels were processed for oil.

Flaxseed production in 1947 was 39,763,000 bushels, three-fourths more than in 1946. The 4,026,000 acres harvested has been exceeded only twice before, and the yield of 9.9 bushels per acre was the highest since 1915. Planting was delayed by wet weather, but the spring moisture carried the crop through a dry summer to a favorable harvest period.

Peanut production for the sixth consecutive year topped two billion pounds and the 1947 crop set a new high mark at 2,251,640,000 pounds. Some harvesting loss occurred in the Virginia-Carolina and southeastern areas because of fall rains, while yields were held down by dry, hot weather in the southwestern area.

Flaxseed, at an average price of $6.23 per bushel was worth $247,876,000, compared with $4.04 and only $91,183,000 in 1946. Peanuts were valued at 10.2 cents per pound and a total of $229,810,000, compared with 9.1 cents and $185,399,000 in 1946. Cottonseed averaging $85.40 per ton and a total of $404,979,000 exceeds by far the smaller 1946 crop worth $71.90 per ton and a total of $252,674,000. The four oilseeds totaled $1,479,367,000 in value, compared with $1,045,643,000 in 1946.

SEED CROPS

Over 705,600,000 pounds of clean seed were harvested in 1947 from 5,400,000 acres by farmers in the United States. These totals include 24 kinds of legume, grass, and cover crops seeds, and compare with 778,400,000 pounds harvested from 6,700,000 acres in 1946, and with the 1941-45 average of 702,800,000 pounds from 5,700,000 acres harvested. The aggregate farm value of the 24 kinds of seed produced in 1947 was $128,000,000 compared with $157,600,000 in 1946.

The 1947 production of the five major legume-hay seed crops (alfalfa, red clover, alsike clover, sweet clover, and lespedeza), totaling 309,400,000 pounds, was 25 per cent smaller than in 1946 when record crops of alfalfa and red-clover seed were produced. The decrease from 1946 was due entirely to a sharp reduction in acreage harvested. In the winter cover crop group, consisting of vetches, Austrian winter peas, blue lupine, ryegrass, and crimson clover, the 1947 production of 234,600,000 pounds was 5 per cent smaller than the 1946 total of 245,700,000 pounds, but exceeded the 1941-45 average by 15 per cent. In spite of a record crop of lupine and more hairy vetch and Austrian winter peas produced in 1947, the total for this group fell below that of 1946 as a result of smaller crops of other vetches, ryegrass, and crimson clover. Production of the pasture and lawn grasses was sharply larger in 1947 than a year earlier. Timothy-seed production was one-fourth larger, Kentucky-bluegrass production was nearly three times larger, and more bromegrass, crested wheatgrass, redtop, and meadow fescue were produced in 1947 than in 1946. These increases were, however, partly offset by smaller crops of Sudan grass and orchard-grass seed.

The 1947 production of alfalfa seed at 1,699,400 bushels, thresher-run seed, was the second largest crop of record, exceeded only by the record 1946 crop of 1,822,400 bushels. It was 44 per cent larger than the 1936-45 average of 1,179,040 bushels. The 1947 acreage harvested of 1,021,200 acres was 13 per cent smaller than the record of 1,174,200 acres harvested in 1946.

Production of red-clover seed in 1947 was the smallest in five years, and a little more than half as large as the record 1946 crop. The 1947 crop of 1,194,800 bushels compares with 2,141,800 bushels in 1946 and the average of 1,435,290 bushels. The large decrease from 1946 was due entirely to the 47 per cent reduction in acreage, which was offset only in part by the slightly larger yield per acre in 1947. Out of 18 producing states, production in only Kentucky, Kansas, Washington, and Oregon was larger in 1947 than in 1946.

The 1947 crop of alsike-clover seed of only 366,200 bushels was 18 per cent smaller than the 1946 crop of 446.200 bushels, but 14 per cent larger than the average of 320,420 bushels. Production in each of the states, except Oregon and California, was smaller in 1947 than in 1946.

The production of only 564,400 bushels of sweet clover seed in 1947 was the second smallest in 24 years of record. It was 10 per cent smaller than the 1946 production of 628,000 bushels and about one-third smaller than the average of 873,650 bushels. Decreases from 1946 were most marked in South Dakota, Nebraska, and Iowa. Increases were largest for Ohio, Kansas (leading state in 1946 and 1947), and Michigan.

The 1947 production of lespedeza seed, smallest in seven years, was 153,960,000 pounds of thresher-run seed. This is about one-fourth smaller than the 1946 crop of 206,800,000 pounds, but 2 per cent above the average of 151,164,000 pounds. Smaller crops than in 1946 were harvested in all producing states except Illinois, Indiana, Kentucky, and Georgia. Wet weather during November caused some shattering of seed and delayed harvesting.

The 1947 production of timothy seed, at 1,641,400 bushels, was 24 per cent larger than the 1946 crop of 1,319,000 bushels and 10 per cent above the average of 1,487,540 bushels. Larger crops than in 1946 in Iowa, Illinois, Indiana, and Ohio more than offset the smaller crops in Missouri, Minnesota, Wisconsin, and Pennsylvania.

Production of Sudan-grass seed in 1947, of 20,740,000 pounds of clean seed, was the smallest on record (since 1929) except in 1934 when 17,050,000 pounds were produced. The 1947 production was 11 per cent smaller than the 1946 crop of 23,300,000 pounds.

Production of Kentucky bluegrass seed in 1947 was over three times as large as the small 1946 crop, and 73 per cent above average. Of the 4,537,000 bushels (63,518,000 pounds) of cured seed produced in 1947, Iowa accounted for 19.1 per cent; Missouri, 18.8 per cent; Nebraska, 18.2 per cent; Kentucky, 14.8 per cent; Minnesota, 13 per cent, and the Dakotas, Kansas, Wisconsin, and Illinois made up the remaining 16.1 per cent. Production of clean seed, weighing 21 pounds per measured bushel or having a purity of about 85 per cent, was 30,235,000 pounds in 1947, compared with 7,666,000 pounds in 1946, and the 1941-45 average of 18,604,000 pounds.

A record crop of 48,300,000 pounds

SEED CROPS—UNITED STATES

Kind of Seed	Acreage Harvested			Yield per Acre			Production		
	Average 1936–45	1946	1947	Average 1936–45	1946	1947	Average 1936–45	1946	1947
		Acres			Bushels			Bushels—Thresher-run	
Alfalfa	801,080	1,174,200	1,021,200	1.49	1.55	1.66	1,179,040	1,822,400	1,699,400
Red clover	1,452,830	2,601,300	1,374,600	1.06	.82	.87	1,435,290	2,141,800	1,194,800
Alsike clover	145,720	165,600	137,400	2.27	2.69	2.67	320,420	446,200	366,200
Sweet clover	339,250	235,700	210,900	2.60	2.66	2.68	873,650	628,000	564,400
Timothy	427,460	365,300	412,800	3.44	3.61	3.98	1,487,540	1,319,000	1,641,400
Lespedeza[1]	745,650	935,000	755,500	197	221	204	151,164	206,800	153,960
	Average 1941–45	1946	1947	Average 1941–45	1946	1947	Average 1941–45	1946	1947
		Acres			Pounds			Thousand Pounds—Clean	
Hairy vetch	103,040	56,400	95,200	233	221	209	23,746	12,490	19,890
Common and Willamette vetch	68,120	104,000	83,500	448	437	417	31,024	45,400	34,800
Hungarian vetch	9,340	2,900	2,600	453	450	460	4,260	1,300	1,200
Purple vetch	24,540	36,700	29,800	369	343	150	8,992	12,580	4,480
Austrian Winter peas	85,860	44,500	49,000	908	1,265	1,199	80,000	56,300	58,750
Blue lupine	9,533	37,000	57,000	919	1,051	847	8,600	38,900	48,300
Common ryegrass	73,200	98,000	90,000	358	550	510	29,500	58,000	49,500
Perennial ryegrass	14,300	16,500	17,300	247	340	320	3,580	5,600	5,500
Crimson clover	55,520	61,800	64,900	252	245	188	14,092	15,160	12,220
Ladino clover	9,440	13,600	12,500	66	76	72	599	1,030	900
White clover	20,900	28,900	33,300	91	138	124	1,901	3,980	4,120
Redtop	251,600	239,000	211,000	68	63	75	17,180	15,000	15,900
Orchard grass	46,720	50,700	40,300	128	153	155	5,989	7,770	6,244
Kentucky bluegrass	493,960	346,500	560,000	38	22	54	18,604	7,666	30,235
Crested wheatgrass	[2]95,925	22,100	23,300	[2]110	91	118	[2]10,552	2,010	2,750
Bromegrass	60,650	32,000	54,400	181	141	199	11,000	4,510	10,820
Meadow fescue	8,150	9,400	10,900	164	147	155	1,220	1,380	1,690
Sudan grass	126,220	64,600	54,800	376	361	378	48,095	23,300	20,740

[1] Yield per acre in pounds and production in thousand pounds.
[2] Short-time average.

of blue-lupine seed was produced in 1947 in Georgia, Alabama, and Florida. Since 1943, when only 5,100,000 pounds were produced, the use of lupines for soil building and winter cover has spread each succeeding year into suitable areas of the deep South. The 1947 crop compares with 38,900,000 in 1946, and with the 1943-45 average of 8,600,000 pounds.

THE DAIRY INDUSTRY

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GENERAL

The year 1947, the first full post-war year that the dairy industry was free of all controls, found it in a substantially different position from pre-war. However, except for prices and income the dairy industry during 1947 was not much different from recent years.

Radical changes of the war years in milk production and utilization were continued into 1947. These were a 15 per cent increase in milk production above pre-war and significant changes in the utilization of the milk supply and in the consumption of dairy products. Among the changes which occurred during the war the most outstanding were: (1) a distinct shift in the methods used by farmers in disposing of milk; (2) sharp increases in the domestic consumption of nonfat solids in milk for food; (3) a shift from a net importer to a net exporter basis.

Average prices received by dairy farmers in 1947 and cash receipts were at record highs. This reflected exceptionally large consumer incomes and the substantial rise in the price level which in part was due to exports of agricultural products. Readjustments occurred during the year among the prices of dairy products; sharp fluctuations occurred, particularly for butter.

The probable future pattern of utilization of the milk supply was becoming fairly evident in 1947 with consumption of butter much lower and fluid milk and cream and whole milk products (canned milk and cheese) remaining substantially higher than in pre-war years. (Estimates for 1947 are partly forecast.)

COW NUMBERS AND MILK OUTPUT

During the last 23 years, milk cow numbers have not kept pace with increases in population. Cow numbers during 1947 were about 12 per cent higher than in 1924. During the same period the population increased about 25 per cent.

In the 23-year period from 1924 through 1947 three declines in cow numbers occurred—one from 1925 through 1929 and another during the drought period 1934-38. Neither of these declines was large. The third decline in cow numbers began in 1944. During that year the all-time high in cow numbers—26,000,000 average—was reached. Since then a decrease of 7 per cent has occurred, and in 1947 the average number was about 24,000,000 head, 2 per cent below the previous year.

Despite the reduction during the last few years in cow numbers, total milk production has changed little. The smaller number of cows has been offset by higher output per cow. In 1947, milk production amounted to about 120,500,000,000 pounds, nearly 1,000,000,000 pounds more than in 1946. Output per cow in 1947 exceeded 5,000 pounds for the first time on record.

Short time factors which accounted for the increases in production per cow during the last three years were large feed supplies, good pastures due to favorable weather, and culling of the lower producers from dairy herds.

In 1947, an additional factor was the improved labor supply which resulted in a larger percentage of cows milked than in recent years. In the long run, improvements in methods of feeding, in breeding, and in better management practices contributed to the upward trend in production per unit.

RECORD PRICES AND INCOME

Dairymen in 1947 received about $4,200,000,000 from sales of milk and dairy products. In addition, the value of milk, cream, and butter consumed on farms during 1947 was equivalent to about $800,000,000. Hence, gross farm income from dairying totaled $5,000,000,000, exceeding the 1946 record by about 20 per cent and trebling that of the pre-war years. Since 1920, except for 1942 and 1943, dairying has been the largest contributor to farmers income.

With total milk production only slightly above 1946, increased prices were largely responsible for the higher cash income in 1947 than a year earlier. Farmers received record high averages of about $4.30 per cwt. of whole milk sold, and 75 cents per pound of butterfat. However, relative to feed costs and returns from alternative enterprises, returns from dairying were not so favorable as in recent years.

In addition to the effects of record high prices, a part of the increase in cash receipts over pre-war years was accounted for by a shift from selling cream skimmed from milk to selling whole milk. The latter provides a cash outlet for the nonfat solids in milk, and in almost all instances affords higher unit returns per unit of milk sold. In 1947, sales of whole milk amounted to almost 71,000,000,000, a figure slightly above 1946, and nearly double the 1935-39 average, in contrast to an increase in milk production of only 15 per cent. On the other hand, sales of cream skimmed from milk declined about 30 per cent. In 1947, such sales were the equivalent of 22,000,000,000 pounds of milk compared with 33,000,000,000 pounds in pre-war years.

The United States Department of Agriculture purchased about 200,000,000 pounds of nonfat dry milk solids (dried skim milk). Consequently, except for nonfat dry milk solids, no price support purchases were necessary. The Steagall Amendment to the Price Stabilization Act provides that, if funds are available, the price of whole milk and butterfat received by farmers shall be supported at not less than 90 per cent of parity through Dec. 31, 1948. Unit returns for both whole milk and butterfat during 1947 exceeded parity by about 18 per cent.

FLUCTUATIONS IN BUTTER PRICES

In making the readjustments to a full peacetime basis, prices of manufactured dairy products fluctuated widely. Many of these fluctuations, particularly in the case of butter which is the largest residual claimant of the milk supply, were owing to the lapse and later the removal of price controls in the second half of 1946. Sharp increases occurred in late 1946. In early 1947, prices declined sharply (February through May), but in late 1947, butter prices again fluctuated widely. Although prices of cheese and evaporated milk also fluctuated more widely than in the years prior to 1941, these fluctuations were not so great as in the case of butter.

Retail prices of dairy products in general were about two to three times above pre-war. Butter averaged about 82 cents per pound, cheese over 60 cents a pound, and evaporated milk was about 13 cents a tall can. Fluid milk prices averaged about 19 cents a quart.

UTILIZATION OF MILK SUPPLY

The 124,000,000,000 pounds of milk produced on farms and in cities and villages were utilized and consumed in a variety of ways. About 3,000,000,000 pounds were used in feeding calves on farms, 12,000,000,000 pounds more were consumed by people living on farms as fluid milk and cream. In addition, about 8,000,000,000 pounds went into farm products. Thus, almost 24,000,000,000 pounds, or approximately one-sixth of the total output, did not enter into commercial channels. The urban population consumed the equivalent of 45,000,000,000 pounds of fluid milk and cream. Total consumption of fluid milk and cream, consumed by both farm and urban, amounted to 57,000,000,000 pounds, or approximately 45 per cent of the total production. In contrast, during pre-war years, only 45,000,000,000 pounds were used in fluid milk and cream.

Utilization of milk in whole milk products (cheese, canned milk, and dried whole milk) was at a record level of about 22,000,000,000 pounds compared with about 12,000,000,000 pounds pre-war. Of this quantity, production of cheese took 13,000,000,000 pounds, and nearly 7,000,000,000 pounds went into production of canned milk. Dried whole milk and other miscellaneous items utilized about 2,000,000,000 pounds. Ice cream production utilized about 7,000,000,000 pounds of milk. The quantity of milk used for production of creamery butter, however, was among the lowest on record and totaled about 27,000,000,000 pounds. During 1946, the year with the lowest utilization, about 24,000,000,000 pounds were used for that purpose. In contrast, creamery butter output in immediate pre-war years utilized about 35,000,000,000 pounds of milk.

The quantity of skim milk used for manufacturing purposes was at a record of 15,000,000,000 pounds. Of this volume, nearly 8,000,000,000 pounds went into the production of nonfat dry milk solids for human consumption. The quantity of skim milk used for nonfood purposes or wasted was about 40,000,000,000 pounds, milk equivalent basis. This was slightly larger than the previous low in 1946, but it was substantially less than in the 1935-39 period when about 50,000,000,000 pounds went into this use.

CHEESE AND CREAMERY BUTTER PRODUCTION

A stronger domestic demand, accompanied by large export requirements, continued to favor the production of dairy items other than butter. Accordingly, the output of whole milk manufactured products, was at or near record levels.

Production of American Cheddar cheese was at a record of 1,050,000,000 pounds, about 30 per cent above 1946 and more than double the 1935-39 average. Output of cheeses other than American types declined moderately but at 275,000,000 pounds was 75 per cent above pre-war. Output of condensed and evaporated milk was somewhat less than in 1946, but at 3,400,000,000 pounds, exceeded pre-war by 70 per cent. Production of dry whole milk declined from its wartime peak in 1945, but at 165,000,000 pounds still exceeded pre-war seven times. Production of nonfat dry milk solids for human consumption was at an all-time high of nearly 700,000,000 pounds. 7 per cent above the previous record in 1945 and more than triple pre-war. On the other hand, total butter output, farm plus nonfarm, in 1947 was about 1,600,000,000 pounds, 10 per cent above the previous low in 1946 and 25 per cent below that of the late thirties. Production of ice cream and sherbets was about 10 per cent below the previous year's all-time high and substantially above any other year.

EXPORTS OF DAIRY PRODUCTS

Since 1940 the United States has been a net exporter of dairy products. In contrast, during the period between the two world wars this country was a net importer of dairy products largely of foreign-type cheeses.

The proportion of domestic production exported reached a peak in 1944 when 5 per cent of the milk produced was shipped abroad. In 1947 a little more than 3,000,000,000 pounds of milk equivalent, or 3 per cent of the milk output, were exported. However, exports vary considerably among the manufactured products. Exports accounted for more than half of domestic output of dry milks, nonfat dry milk solids, and whole milk. Exports of canned milk and American cheese amounted to about 15 per cent of the domestic output. Very small quantities of butter were shipped abroad.

CIVILIAN CONSUMPTION OF BUTTERFAT AND NONFAT SOLIDS

In determining the milk equivalent of production and consumption of dairy products, conversion factors based on the relative amounts of butterfat contained in the various products have been used. On this basis, total civilian consumption of all milk and dairy products in 1947 was the largest in any year since 1930, the earliest year for which data are available. Consumption on a fat-solids milk equivalent basis totaled 116,000,000,000 pounds in 1947, compared with 113,000,000,000 pounds in 1946 and a 1935-39 average of 104,000,000,000 pounds. Because of the large increases in civilian population, however, the per capita consumption was 810 pounds milk equivalent, about equal to pre-war and 1946.

The consumption pattern among commodities varied widely compared with pre-war. The 1947 per capita consumption of butter was substantially below pre-war; that of fluid milk and cream was somewhat below the wartime peaks. Per capita consumption of butter in 1947 was 11½ pounds, somewhat higher than the previous year but substantially below the 16.7 pounds in 1935-39. Consumption of all cheeses, excluding cottage, pot, and baker cheese, for the first time exceeded 7 pounds per person, about 30 per cent above pre-war. Also, consumption of canned milk during 1947, in part due to the higher birth rate in recent years, exceeded 20 pounds per person, an all-time high. Fluid milk and cream consumption was about 400 pounds, nearly 5 per cent below 1946 but 20 per cent above the pre-war average.

The milk equivalent of production and consumption of dairy products also can be determined by using conversion factors based on the relative amount of nonfat milk solids (protein, minerals, and milk sugar) contained in the various products. Milk products that contain nonfat milk solids are among the more important nutritional sources of calcium and riboflavin. In view of the possible deficiencies of these two nutrients in civilian diets, this method of calculating milk equivalent is receiving increasing attention. Figured in this way, the civilian per capita consumption of all milk and dairy products on a milk equivalent basis in 1947 was about 550 pounds, compared with 580 pounds in 1946, an all-time high, and a 1935-39 average of 431 pounds. The difference between the civilian consumption of all milk on a fat and nonfat solids basis largely represents nonfat solids (skim milk, buttermilk, and whey) fed to livestock or used for industrial casein.

INSECT PESTS AND PLANT QUARANTINES

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GENERAL

Much emphasis has been placed on research to determine the value of new chemicals that show promise for possible use as insecticides and in improvements in methods and equipment for applying insecticides and fumigants. The principal problem at present relative to the use of the newer materials concerns the possible hazardous effect on man and animals of residues remaining on food and forage crops, and the possible harmful effects of continued application of these materials on soils. Prevention of plant-pest introduction through air commerce is still one of the outstandingly important problems. The use of new and improved materials, methods, and equipment has aided greatly in a number of large-scale insect and plant-disease control programs carried on in cooperation with state and other agencies, and has made possible some additional modifications in treatments required for certification of materials to permit movement under plant quarantine regulations.

FURTHER DEVELOPMENTS OF NEW INSECTICIDES AND METHODS OF APPLICATION

Experimental work of an extensive nature has been continued to determine the most suitable formulations and schedules for use of DDT on various crops against different insects, and a few additional recommendations have been made. Several of the newer organic materials have been tested extensively and showed much promise. They included benzene hexachloride (see the 1946 review), chlordane (previously designated as 1068), a chlorinated camphene (Toxaphene), hexaethyl tetraphosphate, tetraethyl pyrophosphate, and others.

Present experimental evidence indicates that some of these compounds are highly effective against pests not controlled by DDT and that some give even more effective control of certain pests against which DDT has shown considerable promise. Benzene hexachloride continued to show up well in experiments for the control of certain insect pests of cotton, and mixtures of this material with DDT were found effective against many cotton pests. The gamma isomer was found to be more toxic to insects than the other isomers. Chlorinated camphene (Toxaphene) showed promise against several different kinds of insects in laboratory and small-scale field tests. Chlordane was found to be very effective against cockroaches and grasshoppers and also showed promise as a soil insecticide when tested for the control of Japanese beetle grubs. Hexaethyl tetraphosphate in preliminary tests showed promise for the control of orchard mites. Aerosols containing this material gave unprecedented control of the two-spotted spider mite on roses in commercial greenhouse tests. Tetraethyl pyrophosphate was found to be more toxic than hexaethyl tetraphosphate in tests against several species of insects. An advantage of the newer insecticides lies in the extremely small quantities necessary to give good control of insect pests. However, it has not yet been possible to recommend the use of these newer materials. Much more must first be learned regarding their toxicological effects. Facilities for conducting such studies have been established.

Further progress has been made in improvements in methods and equipment for applying insecticides. Continued investigations on the chemical phases of aerosols have disclosed that carbon dioxide absorbed in acetone can be used as an inexpensive solvent and propellant for aerosols for field use. The use of liquefied-gas aerosols to destroy agricultural pests and insect vectors of disease in airplanes is under investigation. Additional progress has been made in the application of insecticides from the air.

SCREW-WORMS

The screw-worm survey was continued during 1946. Because of the shortage of turkey red oil used in Smear 62, a formula known as EQ Smear 82, in which *n*-butyl alcohol and a sodium salt of an alkylated aryl polyether sulfate are substituted for turkey red oil, was recommended during the year as an alternate treatment for screw-worms.

OTHER LIVESTOCK PESTS

A sucking louse, *Haematopinus quadripertusus* Fah., a serious pest of cattle commonly referred to as the tail louse, first found in this country in Florida in 1945, was found in several localities in that state and in Texas and Alabama in 1946. Chlordane and chlorinated camphene were evaluated in preliminary tests against several pests of livestock and show promise for the control of some kinds of ticks and lice on cattle. Little information is available, however, on possible toxicological effects of these materials to livestock. DDT sprays have been found to provide excellent control of horn flies and lice on cattle. Benzene hexachloride proved to be more toxic than DDT to sucking lice on cattle and biting lice on goats, and to lone star ticks. It does not, however, have residual effect comparable to DDT. Combinations of DDT and benzene hexachloride show promise for the control of certain ticks on livestock.

FRUIT INSECTS

DDT again gave outstanding control of the codling moth and deposits of it, even when as much as 10 days old, were toxic to the moths and reduced egg laying. It also showed promise against such major pests as oriental fruit moth, pecan and chestnut weevils, shot-hole borer, and sucking bugs on peaches. Preliminary tests indicated that benzene hexachloride, hexaethyl tetraphosphate, chlordane, and other newer insecticides may have value for specific fruit pests. Comstock mealybug populations were markedly lower than in 1945, and more so in DDT- than in lead arsenate-sprayed orchards. The mango fruit fly (*Dacus dorsalis* Hendel) was found in Hawaii in 1946.

JAPANESE BEETLE

The cooperative milky disease distribution program resulted in the treatment of approximately 9,500 acres with milky-disease spore dust during 1946 in 11 states. The application of DDT dusts to empty and then loaded refrigerator cars and trucks carrying white potatoes to make and keep them free of living Japanese beetles was authorized on May 17, 1947. This method not only permits immediate movement of the produce but costs less than fumigation with methyl bromide. The Federal Japanese beetle quarantine was amended, effective May 17, 1947, to include additions to the regulated area in New York and West Virginia.

WHITE-FRINGED BEETLE

Some additional areas have been found infested, and these insects are now known to be present on approximately 200,000 acres in Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, and South Carolina. Control measures were applied to locations where they were considered essential for reduction of populations and in situations presenting a hazard of long-distance or important local spread. In preliminary tests, chlorinated camphene showed some promise against these insects. State and Federal quarantines were revised to include new areas of infestation.

EUROPEAN CORN BORER

During 1946, two states, North Dakota and South Dakota, and 45 counties in previously infested states were added to the known infested area. Losses occasioned by this insect totaled about $37,000,000 in 1946. Substantial progress was made in developing suitable methods of using DDT against this insect. However, the major limitation to the use of DDT on forage crops continues to be the possible poison hazards to man or animals of residues remaining on treated forage. In cooperation with state agencies, over 400,000 parasites of this insect were released in 14 states.

GRASSHOPPERS

Chlordane is one of the most promising insecticides tested thus far for control of these insects when applied directly to heavy vegetation along fence rows, roadsides, and irrigation ditches. In the spring of 1947 the weather was favorable to a rapid hatching and development only in Arizona, California, Texas, and certain areas west of the Continental Divide. During 1946 cooperative control operations were conducted in 21 Central, Midwestern, and Western states, affording protection to more than 5,765,000 acres of crop and pasture lands valued at over $41,150,000.

STORED-GRAIN INSECTS

Several inert dusts were tested against these insects. Attapulgus clay, bentonite, silica gels, and diatomaceous earth gave good to excellent protection of stored seeds, pelleted and ground animal feeds, and powdered hand soap containing not more than 12 per cent moisture. Preliminary observations indicate that local application of fumigants to individual machines in flour mills can be dispensed with, if the entire dosage is fed into the flour stream at the breaker rolls with the machinery running a few minutes before the mill is shut down. Not only do results appear to be as good as when individual machines are treated, but the time required for the operation is reduced from several hours to a few minutes.

VEGETABLE INSECTS

Aerosol insecticides containing hexaethyl tetraphosphate have shown good results in the control of certain greenhouse pests not affected by those containing DDT. DDT aerosols have also shown promise in the control of aphids affecting canning peas. Against insects attacking beans a dust containing DDT, rotenone, and sulfur was found to be an effective all-purpose treatment. This mixture controlled the Mexican bean beetle and powdery mildew disease, as well as corn earworm. DDT was found to retain its toxicity to wireworms in the soil for at least three years, but to kill very slowly. Benzene hexachloride was found to be extremely toxic to wireworms, but even in quantities as small as ½ pound of the gamma isomer per acre affected the flavor of potatoes, carrots, and beets. Benzene hexachloride and chlorinated camphene were found to be very toxic to the tobacco hornworm. Chlordane and benzene hexachloride sprays were found to be toxic to some stored-tobacco insects. However, the disagreeable odor of benzene hexachloride precludes its use on tobacco. The use of DDT can be recommended for the control of pea weevil and the pea aphid, provided that until the residue situation is clarified the pea vines are not to be used as forage for livestock. An investigation of the control of the pea aphid on peas grown for processing in Washington and Oregon was initiated, and attention was directed towards the successful application of insecticides from the air.

In cooperation with the Federal Bureau of Plant Industry, Soils, and Agricultural Engineering, studies were initiated on the effect of DDT and benzene hexachloride accumulations in the soil on plant growth.

PINK BOLLWORM

New infestations in two Texas counties, Hockley and Wharton, represented the only spread of the pink bollworm during 1946. Infestation was extremely light. Although it is not possible to evaluate fully the results of DDT applications in June 1946 to heavily infested areas of the lower Rio Grande Valley of Texas and Mexico, those fields treated developed very little infestation. Administrative instructions, effective Oct. 28, 1946, modified requirements of certification of cottonseed for movement to points outside the heavily infested area by authorizing an alternate method of treatment involving fumigation with methyl bromide.

Cooperative work with Mexico has continued to be very worthwhile, and one outstanding achievement during the year was the adoption of fixed-planting and stalk-destruction dates in the Matamoros-Tampicos, area to conform with dates applicable to the adjacent area in the lower Rio Grande Valley of Texas.

OTHER COTTON INSECTS

In 10 of the 12 states where the boll weevil occurs it caused greater reduction in yields in 1946 than in 1945. Benzene hexachloride tested in the laboratory and under field conditions on the major cotton insect pests continues to give promising results. In cooperative field experiments conducted during 1946 in South Carolina, Mississippi, Louisiana, and Texas, dusts containing 5 per cent of the gamma isomer gave satisfactory control of the boll weevil and the cotton aphid. In laboratory tests, chlorinated camphene and chlordane gave promising results against a number of cotton insects, including boll weevil, cotton aphid, cotton flea hopper, and garden webworm; hexaethyl tetraphosphate gave excellent control of spider mite adults and nymphs on cotton in a greenhouse when applied as a spray at strengths of one pound per 100, 150, and 200 gallons of water.

FOREST INSECTS

The results of large-scale application of DDT by aircraft, blower apparatus, and knapsack sprayers to gypsy moth infested territory in northeastern Pennsylvania have been very satisfactory.

DDT sprays applied by airplane to valuable timberland in Idaho, Washington, and Oregon controlled a serious outbreak of Douglas-fir tussock moth. This program, conducted in cooperation with the Forest Service, the states, and private timber owners, involved the application of 390,881 gallons of insecticide, dispersed at the rate of slightly less than one pound of DDT to one gallon of solvent per acre, to 413,469 acres of timberland. C-47 and other types of multi-engine planes, as well as small planes, were used in these operations. It was important that spray applications be made while the young caterpillars were feeding; therefore, operations were begun on May 22, 1947, and completed on July 2, a record for such a large-scale operation. Inspections made shortly after the spraying disclosed no living tussock moth caterpillars in the treated area.

Preliminary experiments using a mist blower for the application of DDT to prevent the feeding by elm bark beetles on twigs of elm trees gave promising results. The large-scale field spray tests with DDT against sucking insects that may transmit the virus causing phloem necrosis are being continued. Tests of DDT and benzene hexachloride for control of *Ips, Dendroctonus,* and *Scolytus* beetles in various species of pine, spruce, and fir have given very encouraging results.

Chemical treatments for insulation of underground wire and cables in the Canal Zone have proven effective in giving needed protection against termites.

A 0.4 to 0.8 per cent gamma isomer concentration of benzene hexachloride in fuel oil gave satisfactory protection to green logs and lumber against attack by ambrosia beetles.

BEE CULTURE

An outstanding feature of the year's work was the demonstration that *Bacillus larvae,* the organism causing American foulbrood in honey bees, produces, not one, but four separate antibiotic substances, one of which is active against the bacillus responsible for an important disease of man. By appropriate chemical treatment the toxicity of these antibiotics has been greatly reduced. For the first time, only artificially inseminated queen bees were used in studies on resistance to American foulbrood.

FOREIGN PARASITE INTRODUCTION

Shipments of leaf-feeding insects from Australia for the biological control of the Klamath weed were continued. Field establishment in California has already been demonstrated in all the colonies of *Chrysolina hyperici* Foerst. and *C. gemellata* Rossi released during the last two years.

In cooperation with other Federal bureaus as well as state agencies, arrangements were made for forwarding three species of parasites of the Comstock mealybug to Canada; of *Macrocentrus ancylivorus* Roh. to Argentina and Italy for control of the oriental fruit moth; and of *Copidosoma koehleri* to Italy for use against the potato tuberworm.

DUTCH ELM DISEASE

There was considerable extension of the known limits of infection. The Federal quarantine to retard interstate spread of this disease was revoked on May 1, 1947. This action was taken because the bark beetles that spread the disease move considerable distances by natural means which can not be controlled by quarantine action. The quarantine prohibiting the importation from Europe of articles that may carry the disease fungus remains in force.

WHITE PINE BLISTER RUST

Since its separate introduction into the Northeastern and the Northwestern states, this disease has spread slowly but steadily, until it is now present in the principal commercial white pine regions. During 1946 more than 25,000,000 ribes bushes were removed from 1,891,809 acres, of which 663,382 were initial eradication and 1,228,427 were rework. Ammonium sulfamate, 2,4-D, and other new chemicals have improved eradication methods.

BLACK STEM RUST

Wheat losses from stem rust during 1946 were light. Several of the newer herbicides were tested on common barberry (*Berberis vulgaris*) with some success. During the 1946 season 13,545,204 barberry bushes were destroyed on 2,561 properties covering an area of 21,930 square miles, in the 18 states comprising the barberry eradication area.

FOREIGN PLANT QUARANTINES

Inspection of 38,530 ships during the fiscal year ended June 30, 1947 represents a decrease of 16 per cent below the number inspected in the previous year, but the number of ships arriving that carried prohibited material rose from 18 per cent to 22 per cent. During the year, 58,519 airplanes were inspected at 44 ports of entry. This total includes 4,666 arrivals from the mainland which were inspected in Hawaii by Federal personnel, and is substantially the same as the 1946 total despite the use of larger planes, the greater proportion of commercial flights, and the factors which tended at times to reduce air travel during the year. Prohibited plant material was found on 27 per cent of the planes, an increase over 1946. A total of 5,252 interceptions of insects and plant diseases was made from airplanes. The number of inspections of freight cars from Mexico totaled 68,675 of which 8,057 were fumigated as a condition of entry. A total of 7,044,096 other vehicles and 1,581,432 pieces of baggage was examined, in cooperation with United States Customs.

In Hawaii, the plant quarantine program is one of preventing foreign plant pests from being introduced into the Territory, or *via* Hawaii to the mainland and the plant pests of Hawaii from spreading to the mainland. This work is conducted jointly, under Federal supervision, with representatives of the Territorial government. All aircraft arriving in the Territory and surface vessels arriving in Pearl Harbor from the mainland are now inspected by Federal personnel. All aircraft from abroad are now disinsectized for agricultural pests on arrival in Hawaii. Inspection at Hawaii of aircraft departing for the mainland removes pest risk at or nearer its origin and also saves manpower on the mainland. During the year a laboratory was established at Beltsville, Md. for the study of the problem of "hitchhiking" insects and the development of aerosols and residual sprays that will kill all types of insects that may gain entry into the plane compartments, and of other treatment methods that will quickly eliminate insects that infest fruit, plants, etc., that are carried as cargo.

FISHERIES

By Albert M. Day
Director, Fish and Wildlife Service, Department of the Interior

GENERAL PRODUCTION

In 1947, as in each year since the United States entered the Second World War, the fishing industry was unable to increase the yield of fish and shellfish significantly above the average pre-war catch. The total production of fish and shellfish in 1947 was about 4,400,000,000 pounds, the same as in the previous year, and on a par with the 1935-39 average. At the beginning of the war, the requisitioning of a large portion of the fleet of fishing vessels by the Armed Services, and restrictions placed on the operation of fishing craft prevented an increase in the yield. Since the end of the war, failure of pilchard and salmon to appear in normal quantities off the coasts of California and Alaska, respectively, has held the catch near pre-war levels.

The 1947 yield of fishery products was notable for record catches of menhaden and tuna, which were responsible for maintaining the catch at the previous year's level, despite the continued failure of the pilchard fishery, a relatively small yield of salmon, and a decline in the catch of rosefish.

MENHADEN

In 1946, menhaden occupied first place in so far as volume of the catch is concerned. During that year, 916,000,000 pounds were taken by United States fishermen, which represents the largest catch of menhaden in the history of the fishery. In 1947, menhaden were even more plentiful, and the yield increased to about 1,000,000,000 pounds. Landings of these fish accounted for over 20 per cent of the total United States and Alaskan catch, nearly double the production of salmon, the second most important species. As in previous years, nearly the entire catch of menhaden was used in the manufacture of fish meal, which is used in animal feeding, and oil, which is used in industrial processes, such as the manufacture of soap, paint, etc., as well as in animal feeding.

PILCHARDS

The 1947 Pacific pilchard or sardine catch, which amounted to less than 250,000,000 pounds, was the smallest for over 20 years. The yield in the San Francisco district of California was a complete failure, amounting to less than 150 tons, compared with a 1941-45 average of over 130,000 tons. The Monterey, Calif. production likewise declined from a 1941-45 average of nearly 210,000 tons annually to less than 15,000 tons. In 1946, the San Pedro catch totaled 214,000 tons despite small catches in the San Francisco and Monterey districts. However, in 1947, the San Pedro production declined to 97,000 tons.

TUNA

Tuna landings in the Pacific Coast States during 1947 were even larger than the record yield in 1946, and a new pack record of about 5,700,000 cases was established. This was nearly 1,000,000 cases over the previous year's pack. A new development in the tuna fishery was the use of a large factory ship in Costa Rican waters to freeze tuna on the fishing grounds and deliver the fish to a plant in Astoria, Ore. for canning. Several additional floating freezers were expected to begin similar operations early in 1948. Expeditions also were preparing to explore the possibilities of developing the tuna resources of the South Pacific, in waters formerly fished by the Japanese.

SALMON

Salmon were more plentiful in both the Pacific Coast States and in Alaska than in the previous year. The canned pack totaled about 5,200,000 cases, an increase of nearly 600,000 cases over the 1946 production. Runs of salmon have been below normal since 1941. During the years from 1942 to 1947, the average annual pack of salmon was nearly 2,000,000 cases below the average yield in the previous six years. Although below normal in size, recent salmon packs have been the most valuable in history. The 1947 production yielded packers close to $100,000,000.

SEA HERRING

Sea herring support important fisheries in Alaska and in Maine. The Alaska catch in 1947 totaled about 195,000,000 pounds, slightly less than in the previous year. Nearly the entire Alaskan catch was used in the production of fish meal and oil. Small quantities also were used for salting and as bait. The Maine catch of sea herring was approximately the same as in the previous year, when 80,000,000 pounds were taken. The Maine catch and imports of these fish into Maine from Canada are used principally in the canning of sardines. The 1947 pack of sardines in Maine amounted to 2,400,000 cases, about 20 per cent less than in the previous year.

MACKEREL

The California pack of canned mackerel exceeded 1,000,000 cases for the first time since 1940. The catch of these fish in Maine and Massachusetts, which is marketed principally fresh or frozen, showed little change from the previous year's landings of 39,751,000 pounds.

ROSEFISH

Rosefish were the most important food fish taken on the Atlantic Coast in 1946, when the catch amounted to 180,000,000 pounds. Because of reduced demand for fresh and frozen fish during the early months of 1947, the catch of rosefish declined about 50,000,000 pounds, and the haddock resumed its normal position as the leading food fish taken on the East Coast.

PRINCIPAL FISH PORTS

The leading United States fishing ports in 1947, in weight of fish landed, were San Pedro, Calif.; Lewes, Del.; and Boston. San Pedro, which has held first place for the past four years, handled over 430,000,000 pounds in 1947, consisting principally of pilchards or sardines, tuna, and mackerel. Lewes, which is exclusively a menhaden port, maintained its position in second place with landings of about 250,000,000 pounds. Boston moved into third place, when it resumed its position as the principal New England fishing port with landings which totaled over 200,000,000 pounds. Prior to 1943, Boston had held first position in New England from 1908 to 1942. However, in 1943, and for the following three years, Gloucester had moved into first place. Landings at Boston consisted chiefly of cod, flounders, haddock, mackerel, pollock, and whiting. Because of the continued failure of the pilchard fishery in the San Francisco and Monterey districts of California, these ports, which are normally among the leading fishing centers of the nation, occupied relatively minor positions as United States fishing ports.

CANNED FISH

The 1947 production of canned fishery products was about the same as in 1946, when the pack amounted to nearly 700,000,000 pounds, valued at $227,000,000. However, the value of the pack was considerably greater. Five items accounted for over 75 per cent of the 1947 canned pack. These were salmon, tuna, California pilchards or sardines, Maine sardines, and mackerel. The packs of salmon, tuna, and mackerel were greater than in 1946. However, the production of Maine sardines declined about 20 per cent, while the pack of California pilchards or sardines fell off nearly 50 per cent.

FROZEN FISH

A total of 240,000,000 pounds of fishery products were frozen in 1947 by United States and Alaskan firms reporting their activities to the Fish and Wildlife Service. This was 40,000,000 pounds less than in the previous year. A reduction of 15,000,000 pounds in the freezings of rosefish, and 10,000,000 pounds in the quantity of salmon frozen during the year accounted for much of the decline. At the end of 1946, stocks of frozen fish amounted to 158,000,000 pounds, the largest in history. Since the market for frozen fish was sluggish during the first seven months of the year, the production of frozen fish was reduced, and freezings during this period amounted to only 116,000,000 pounds, compared with 152,000,000 pounds for the same period in 1946.

FISH MEAL AND OIL

Production of fish meal in 1947 totaled about 190,000 tons, slightly less than the 1946 yield of 199,555 tons. Fish oil yield declined from 19,000,000 gallons to about 15,000,000 gallons. The considerable decrease in the production of fish oils resulted from the failure of the pilchard fishery in California, and the unusually low oil content of the menhaden taken on the Atlantic Coast. The total yield of fish oils during 1947 was less than half the average production during the period from 1935 to 1939, while the production of meal was about 15 per cent below the 1935-39 average. The disastrous pilchard season in all districts of California was responsible for the major portion of the decline in the yield of meal and oil.

FUR SEALS

A total of 61,447 fur-seal skins were taken in the government-administered sealing operations on Alaska's Pribilof Islands during 1947. This represented a decrease of 3,276 skins from the 1946 take. The decrease was owing to earlier termination of sealing operations, which was made necessary by the early mingling of the young males with family groups. The take of seals is confined to young males which are segregated from the rest of the herd during the early part of the season. The seal herd numbered 3,613,653 animals when the annual census was taken in August. This was an increase of 6.72 per cent over the 1946 census of 3,386,008 animals.

The present value of the Pribilof Islands herd is estimated to be in excess of $100,000,000. When the Federal Government assumed active management of the fur seals in the Pribilofs in 1910, the herd contained only 132,279 animals. By careful conservation, the herd has been developed to its present size and, at the same time, has produced nearly 1,500,000 skins. At the public auctions held in St. Louis April 14 and Oct. 6, 48,712 fur-seal skins were sold for the account of the Government. The total amount received for the skins was $2,607,387, an average of $53.53 per skin. Because of the new fashion trend to longer coats, the large matara sealskins were in particular demand and sold at $123 each, the highest price paid in 27 years.

FISHING FLEETS

The construction of fishing vessels continued at an accelerated pace. About 1,275 vessels of five net tons and over received their first documents as fishing craft in 1947. This was about four times the number of craft added to the fleet annually prior to the Second World War. In the years from 1945 to 1947, inclusive, about 3,100 vessels joined the domestic fishing fleet, which numbered only 5,562 vessels in 1940. Since the new vessels are larger, more heavily powered, and better equipped than the craft they are replacing, the production capacity of the fleet has, in theory, been greatly increased. However, there are indications that fleets of vessels for certain fisheries have been overbuilt, since the construction of additional craft has not increased the total catch. During the year, a considerable number of shrimp vessels were sold to Mexican interests and taken to that country to engage in the Mexican shrimp fishery.

FOREIGN TRADE IN FISH AND FISHERY PRODUCTS

Both imports and exports of fishery commodities declined in volume during 1947 according to data covering the first eight months of the year. Exports declined over 10 per cent, compared with the same period in 1946, while imports declined 25 per cent. Imports of groundfish fillets from Canada, Newfoundland, and Iceland, which had increased from less than 10,000,000 pounds annually prior to the United States entry into the Second World War, to 49,200,000 pounds in 1946, declined sharply in the early months of 1947. At the end of August, imports of these fillets amounted to only 16,000,000 pounds, compared with 33,000,000 pounds for the same period in 1946. Imports of shrimp from Mexico, which totaled 12,000,000 pounds in 1946, likewise declined in 1947. Late in the year, the first shipments of canned crab meat from Japan since 1941, were received at Pacific Coast ports. Prior to the war, from 7,000,000 to 10,000,000 pounds of canned crab meat were received from Japan annually. The discontinuance of export restrictions on shipments of fresh salmon from Canada to the United States in the fall of 1947, resulted in millions of pounds of salmon being diverted from Canadian canners to packers in the United States, whose prices were above those offered in Canada.

SUPPLY AND DEMAND

Domestic and foreign requirements for canned fishery products continued to exceed the supply and grocers' shelves were bare of many varieties of canned fish for considerable periods during 1947. However, there was an apparent surplus of fresh and frozen fish during the first half of 1947. At the beginning of the year, stocks of frozen fish were nearly 30,000,000 pounds above the 5-year average, and prices for many items declined sharply. Fishermen were unwilling to operate at the prices offered and receipts fell off. Landings at Gloucester, the nation's leading fresh fish port in 1946, amounted to only 75,000,000 pounds in the first seven months of the year, compared with 130,000,000 pounds for the same period in 1946. However, in August, when it became apparent that supplies of meat would decline, and that increased quantities of food were required for export, prices improved and landings increased. The production of fish meal and oil was far short of requirements. When these items were removed from price control in 1946, fish oil was yielding producers about 68 cents per gallon, while meal was selling at about $70 per ton. By the end of 1947, the price of oil had increased to about $1.70 per gallon, and meal was yielding about $180 per ton.

FORESTRY

By Charles E. Randall

Information Specialist, U. S. Forest Service

INTERNATIONAL TIMBER CONFERENCE

An international timber conference was held in Marianske Lazne, Czechoslovakia, April 28 to May 10, 1947, with 26 nations represented, including the United States. The immediate subject of consideration was the acute post-war shortage of timber products in Europe. The conference recommended certain short-term measures to cover as far as possible the immediate timber requirements of Europe and non-European countries bordering the Mediterranean. These included a 10 per cent increase in cutting for production of sawn softwoods in 1948-49, increased exports from countries within Europe and the Mediterranean area, possible additional exports from Germany and overseas sources, and economies in the use of timber and limitations of its use.

The conference also gave consideration to worldwide, long-term forest problems. Its long-term recommendations included: establishment by all countries of rational domestic forest policies based on the wise use of existing forests, reforestation of denuded lands, and afforestation of waste land; and steps by European governments to control fellings, not only in forests under state control but also in private forests, with the object of obtaining a sustained and, if possible, increased output. The conference emphasized the importance of periodic surveys of forest resources and annual felling statistics. It urged the expansion of forest research, especially as regards the management and utilization of tropical timbers. It recommended that the Food and Agricultural Organization of the United Nations, in consultation with member governments, should investigate the possibilities of international control of forest pests, and of standard requirements for certification of forest seeds and plants. It also recommended that FAO should proceed further with the collection and distribution of information regarding technical progress in forest industries.

UNASYLVA

The first issue of *Unasylva,* an international periodical devoted to forestry and forest products, appeared in July, 1947. The magazine, to be issued bi-monthly, is published by the Division of Forestry and Forest Products of the United Nations Food and Agriculture Organization at its temporary headquarters in Washington, D. C. First issues were published in English and French editions; a Spanish edition was planned later.

FOREST PESTS

To control a serious outbreak of the tussock moth, which was threatening large areas of timber in northern Idaho, the United States Forest Service, in cooperation with the Bureau of Entomology and Plant Quarantine, in the late spring of 1947 carried out the biggest forest insect control project ever undertaken. The operation involved airplane spraying of DDT over 413,469 acres. More than 2,000 individual airplane flights were made, and 391,000 gallons of insecticide distributed. No living tussock moth caterpillars were found on treated areas after the spraying. The project cost approximately $600,000; the value of timber at stake was estimated at $60,000,000. Private land owners, the State of Idaho, and the Federal Government shared in financing the project.

In southern Idaho, more than 50,000 infested trees were felled in an effort to control an epidemic of bark beetles which threatened to wipe out all mature lodgepole pine over a vast area, including Yellowstone National Park. It was expected that follow-up work would be needed for several years to bring this infestation under full control.

During the year the Forest Service reported its findings in a nationwide study of losses caused by destructive forest insects and diseases. Although diseases and insects are causing greater losses in standing timber than does fire, the report stated much less progress has been made in controlling them. In most parts of the country, man's activities have upset the natural balance among native organisms in the virgin wilderness. Complicating the situation still further is the accidental introduction of a number of highly destructive foreign pests, such as the white pine blister rust, the Japanese beetle, the Dutch elm disease, and the chestnut blight which in 40 years destroyed the American chestnut over its entire commercial range.

During the decade 1934-43, the annual estimated timber loss from insects and diseases was 622,000,000 cubic feet. The average annual loss from fire during the same period was

460,000,000 cubic feet. The estimated drain caused by insects and diseases represents only the more obvious losses, usually timber killed as a result of epidemic outbreaks. Tremendous additional losses are caused by the less spectacular work of a myriad of disease and insect pests ever present in the forests—wood borers, bark beetles, weevils, cankers, wilts, rusts, and wood rots which cause reduced or deformed growth of trees or lower the commercial value of the timber.

Congress in 1947 enacted a Forest Pest Control Act (Public Law 104, 80th Congress) which recognized the Federal concern and responsibility in the control of forest insects and diseases on a nationwide basis, and on lands in all classes of ownership. It provided general authorization for the establishment of more adequate services and facilities for detection and suppression of incipient epidemics, and authorized Federal cooperation with the states and with private forest lands owners to combat outbreaks of forest pests.

WOOD WASTE

The Forest Service in 1947 also issued a report on wood waste in the United States, the first attempt to analyze the problem on a nationwide scale. The report stated that tree tops, limbs, and cull logs left to rot in the woods after logging, slabs, sawdust, and edgings at the saw-mills, materials lost in pulping liquors, and other wastage in primary and secondary manufacturing of wood products all added up to an estimated total of 109,000,000 tons in 1944. Only 43 per cent of all the wood cut winds up in useful products, other than fuel. Twenty-two per cent is used as fuel, much of it inefficiently. Thirty-five per cent is not used at all.

Research conducted by the Forest Service and by forest industries has developed much more knowledge of how to reduce waste than has yet been applied. It is possible, for instance, to convert waste wood into industrial alcohol and high-protein stock and poultry feed. Saw mill trimmings and short pieces that can not be sold as lumber can be made into small-dimension stock, or into many small articles that are now generally cut from standard-length lumber. Much logging and mill waste might be used for pulpwood or converted into chemical products. However, transportation costs, lack of plant facilities, and other factors make the problem difficult. Much of the waste wood is so scattered that it can not at present be economically salvaged.

The report recommended continuing research, looking to development of new techniques for harvesting wood and making products with less waste, and new ways of utilizing what is now wasted. To get the results of such research into use, it recommended increased technical assistance to woodland owners and wood processors, and, where necessary to establish the practicability of new waste-utilization processes, public aid in financing pioneering operations. A major need is greater integration of timber products industries, so that one plant could utilize the by-products and waste materials of another, the report stated. One-product operations, still typical of the forest industries, tend to be wasteful.

Waste reduction will not of itself solve the problem of balancing timber growth and drain at the desirable level, stated the report, but cutting down waste can make the timber supply go further; it can provide more wood products without increasing the drain on the forests.

WATER RESOURCES

In his annual report for 1947, Lyle F. Watts, Chief of the Forest Service, emphasized the importance of forests and other wild land vegetation in the control of streamflow and the conservation of water supplies.

"Conservation of water," he said, "is of the utmost importance. Lack of enough water can limit the growth of communities, industries, agriculture. Floods—too much water in the wrong places—can cause terrible damage and loss.

"Muddy streams, dried-up springs,

lowered water tables, eroding lands and reservoirs filling with silt, damaging floods every year—all these things are plain indications that much watershed land is not being handled as it should be.

"Billions have been spent on levees, dams, and other large-scale engineering works as downstream defenses against floods. But we can not expect to provide the permanent safeguards which the national welfare requires unless we give adequate attention to watershed conditions on the lands upstream—where the floods come from . . .

"Damaged watersheds can be repaired. Rampaging streams can be brought under control. Water sources can be kept in good condition. And to a large extent the kind of forest and range management that restores and maintains good watershed conditions will also make for increased timber supplies and increased livestock production. Recreation and wildlife also will benefit."

PULP AND PAPER FROM ALASKA

For many years the Forest Service has been endeavoring to encourage the development of a pulp and paper industry in southeastern Alaska. Nearly all of the commercial timberland of this Alaska "panhandle" region is within the Tongass National Forest, and the stands are sufficient to support a large-scale industry which could materially increase United States supplies of paper, now seriously short. The predominating timber species—Sitka spruce and hemlock—are suited for paper production, and the region has abundant potential water power resources.

In 1945 the Forest Service invited prospective operators to investigate the possibilities of establishing paper mills in Alaska. The situation was complicated, however, by a large number of Indian claims asserting ownership to extensive tracts of land within the national forest. In July, 1947, Congress enacted legislation which provided that purchasers of national forest timber may operate under sale contracts free and clear of all Indian claims based on possessory rights. All fees collected by the Government for stumpage on the Tongass National Forest will be held in escrow pending the determination of such rights.

Following the passage of this legislation, the Forest Service formally invited bids for two large timber tracts in the Tongass National Forest. It was stipulated that operators will be required to follow cutting practices that will insure continuous timber growth, so that the development of a pulp and paper industry in Alaska will be on a permanent basis.

COOPERATIVE SUSTAINED YIELD UNIT

Operations began during the year in the Shelton Cooperative Sustained Yield Unit, the first unit established under the Cooperative Sustained Yield Units Act of 1944. This unit was set up through an agreement between the Forest Service and the Simpson Logging Company of Shelton, Wash., which provides for the sustained yield management of 270,000 acres of forest land for 100 years.

Located in the southern base of the Olympic Peninsula, the unit includes 112,000 acres of national forest land and 158,000 acres of private land. The national forest land involved supports old-growth Douglas fir, western hemlock, and associated species. Logging company lands include mostly second growth not yet large enough for sawlogs. By combining the management of the old growth national forest timber and the more extensive second growth stands of the company, it will be possible to maintain essentially the present rate of cut. The old growth timber will be allotted for cutting in an orderly fashion, and growth accruing in the young stands will provide the desired annual harvests of sawlogs after the cutting of virgin stands is completed. New growth meanwhile will be coming along on the earlier-worked areas, so that operations may be continued indefinitely.

It is expected that the timber harvested from the entire acreage will supply local industries with about 90,000,000 board feet of raw material every year, continuously. These industries, thus assured of a regular supply of timber by the cooperative agreement, will provide stability for the towns of Shelton and McCleary, Wash., with populations of 4,700 and 1,400, respectively.

The Forest Service had under consideration a number of proposals for similar action to support other communities by a sustained flow of forest products.

PERIODICAL PUBLICATIONS

Agricultural Education
1714 Locust Street, Des Moines, Ia.
Agricultural Engineering
American Society of Agricultural Engineers, St. Joseph, Mich.
American Agriculturist
Savings Bank Bldg., Ithaca, N. Y.
American Forests
American Forestry Association, 919 Seventeenth St., N.W., Washington, D. C.
American Fruit Grower
1370 Ontario Street, Cleveland, O.
Country Gentleman
Curtis Publishing Company, Independence Square, Philadelphia.
Cotton Trade Journal
Cotton Exchange Bldg., Memphis, Tenn.
Dairy World
608 South Dearborn Street, Chicago.
Farm Journal
Farm Journal Inc., Washington Square, Philadelphia.
Fishing Gazette
461 Eighth Ave., New York City.
Hoard's Dairyman
Fort Atkinson, Wis.
Journal of Agricultural Research
Superintendent of Documents, Washington, D. C.
Journal of Dairy Science
North Queen Street, Lancaster, Pa.
Journal of Farm Economics
American Farm Economic Association, Menasha, Wis.
Journal of Forestry
Society of American Foresters, Mills Bldg., Washington, D. C.
Pacific Fisherman
71 Columbia Street, Seattle, Wash.
Produce News
6 Harrison St., New York City.
Successful Farming
Meredith Publishing Company, Des Moines, Ia.
Wallace's Farmer and Iowa Homestead
1912 Grand Ave., Des Moines, Ia.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF NURSERYMEN, P.O. Box 355, Louisiana, Mo.
AMERICAN COUNTRY LIFE ASSN., 297 Fourth Ave., New York City.
AMERICAN FARM BUREAU FEDERATION, 58 E. Washington St., Chicago, Ill.
AMERICAN FORESTRY ASSN., 919 Seventeenth St., N.W., Washington, D. C.
AMERICAN MEAT INSTITUTE, 59 East Van Buren St., Chicago.
AMERICAN NATIONAL LIVESTOCK ASSN., 515 Cooper Bldg., Denver, Col.
AMERICAN ORNITHOLOGISTS' UNION, Ohio State University, Columbus, Ohio.
AMERICAN PHYTOPATHOLOGICAL SOCIETY, Bureau of Plant Industry, Washington, D. C.
AMERICAN POULTRY ASSN., 3030 Brady St., Davenport, Iowa.
AMERICAN SOCIETY OF AGRONOMY, Agricultural Experiment Station, Morgantown, W. Va.
AMERICAN SOCIETY OF ANIMAL PRODUCTION, Kansas State College, Manhattan, Kans.

American Society of Equity, 311 Daily Star Bldg., Minneapolis, Minn.

American Society for Horticultural Science, Lock Box 299, Geneva, N. Y.

American Society of Mammalogists, Museum of Zoology, University of Michigan, Ann Arbor, Mich.

American Veterinary Medical Assn., 600 S. Michigan Ave., Chicago, Ill.

Association of Land-Grant Colleges and Universities, c.o. Experiment Station, Lexington, Ky.

Boyce-Thompson Institute for Plant Research Inc., 1086 N. Broadway, Yonkers, N. Y.

Dairymen's League Co-operative Association, Inc., 11 W. 42nd St., New York City.

Farm Women's National Congress, Clarksville, Ia.

International Farm Congress of America, Continental Bldg., Kansas City, Mo.

Izaak Walton League of America, La Salle Hotel, Chicago, Ill.

Jewish Agriculture Society, Inc., 386 Fourth Ave., New York City.

Middle Atlantic Fisheries Assn. Inc., 203 Front St., New York City.

National Audubon Society, 1006 Fifth Ave., New York City.

National Board of Farm Organizations, 1731 I St., N.W., Washington, D. C.

National Dairy Council, 111 N. Canal St., Chicago, Ill.

National Educational and Co-operative Farmers' Union of America, 1731 I St., N.W., Washington, D. C.

National Fertilizer Assn., 616 Investment Bldg., Washington, D. C.

National Grange, 744 Jackson Place, N.W., Washington, D. C.

National Highways Association, Bass River, Cape Cod, Mass.

National Livestock and Meat Board, 407 S. Dearborn St., Chicago, Ill.

National Poultry Council, Davisville, R. I.

People's Lobby, Inc., 1410 H Street, N.W., Washington, D. C.

Society of American Florists and Ornamental Horticulturists, Inc., 600 S. Michigan Ave., Chicago, Ill.

Society of American Foresters, 825 Mills Bldg., Washington, D. C.

United States Livestock Sanitary Assn., 33 Livestock Exchange Bldg., Wichita, Kan.

Vegetable Growers' Assn. of America, c.o. F. L. Allen Co., Philadelphia, Pa.

Women's National Farm and Garden Assn., Inc., Amber, Pa.

DIVISION XII

MINERAL INDUSTRIES

GOLD, SILVER, AND PLATINUM

By Donald M. Liddell
Consulting Engineer, New York

GENERAL

Gold and silver have always been described as the precious metals. To them may be added the platinum group—platinum, iridium, osmium, rhodium, palladium and ruthenium, distinguished by a high degree of resistance to corrosion, and high melting points—the noble metals.

GOLD

The peak of the world's gold production was reached in 1940 at 40,925,000 oz., and has since had a general downward trend, 26,800,000 oz. in 1946, and probably about 26,000,000 oz. in 1947. These figures are estimates, even as far back as 1940, for the Russians have given out no statistics since 1936, and one can only assume that Russian and Siberian production has remained constant at about 4,000,000 oz. per year, and that Japan, Korea and Manchuria have produced about 1,300,000 oz. per annum.

One of the factors which tended to produce this falling off in gold production, a decline in copper and lead output producing a reduction in the by-product output of gold, was reversed in 1947, but the major factor is still present in intensified form. This is that there has been no post-war advance in gold price to enable the gold producers to meet the inflated wage scales of industry and of the base-metal mines. The gold mines have, therefore, been forced to confine operations to a higher grade of ore than was profitably mined before, leaving the lower grade ores as "rock," or else make a smaller profit per ton treated, or both, and with staffs depleted by the inroads of more profitable industries.

Some recognition of these factors is even entering official minds outside the United States, as South Africa is offering some relief to the gold miner through diminished taxation, and Canada, second to South Africa as a gold producer, has put a bounty on increased gold production over the 1946-7 (fiscal year) output (see p. 505).

ORANGE FREE STATE AND THE RAND

Gold developments in the Orange Free State are still exciting much interest, both on the stock market and in the field. The Odenaalrust field (St. Helena) continues promise of being of considerable size. A large extension of the Rand area has resulted from some good geophysical prospecting, based on the easy tracing of a magnetite bed overlying the gold bearing banket.

Much interest was aroused during the year by the news that two large New York investment banking firms had entered the South African situation through a $10,000,000 investment in Anglo-Transvaal Consolidated Investment Co., acquiring through it a working control of New Union Gold Fields, itself a far-flung investment trust supposed to hold and manage about 200 distinct corporate entities in South Africa. The ink was hardly dry on the newspapers announcing this when it became known that the auditors for New Union Gold Fields had refused to certify to the June 30 balance sheet, alleging the profits amounting to £270,000 which should, in their opinion, have belonged to the company, had gone into the accounts of the two managing directors; that these directors had sold shares owned by them to the company at more than the market prices; that they had bought shares from the company at less than the market price; that they had loaned over £500,000 to themselves without proper authorization; together with other, but minor, irregularities.

As a result of these charges, early in October, Anglo-Transvaal completely took over the management of New Union; in late October the entire enterprise was placed under judicial control; and in early November, the judicial administrators reported that the cash was down to about £400,000, with commitments in excess of this amount (Consolidated Gold Fields carries nearly £3,500,000 in cash). The Attorney General of the Union of South Africa was at the same time understood to be looking into the management from the possibility of criminal action. Romance and high finance have not gone out of the mining industry.

THE GOLD PRICE

The price of gold in 1947 remained fixed in the United States at $35 per oz. Troy, and at 172s. 3d. in London, Canadian exchange being officially at only ½ per cent under par, resulting in a Canadian price of about $35.17. On Nov. 17, the Canadian Government announced that it purposed attempting to aid the gold producers in order to increase its supply of foreign exchange. This was to be done by a payment of $7 per ounce of fine gold for any excess of production by any company over the amount of gold that it produced in the fiscal year ended June 30, 1947. Although it was attempted to keep negotiations discreetly secret, it was understood that the United States immediately protested that this would bring an additional burden on our Treasury as it would ultimately have to buy this gold at $35 an ounce, and it was also understood that the Canadian Government pointed out that a bounty of this sort on gold was exactly parallel with what the United States had done as to its price of silver, but eventually the Canadian Government announced that it had revised its plan because of objections raised by the International Monetary Fund.

Under the amended plan the Canadian Government will pay one-half of the amount by which a mine's cost of production exceeds $18 per ounce on any gold produced in excess of two-thirds of the mine's output in the year ended June 30, 1947. The assistance will run for three years and will apply to production beginning Dec. 1, 1947. With regard to new mines, subsidy payments will apply to the total output for the first year, but only on the excess cost of two-thirds of this output in the two succeeding years. U. S. Secretary of the Treasury Snyder was still not satisfied and publicly commented "that the United States did not favor any tendency for countries to be dependent on a subsidized gold production . . . . for maintaining . . . . their balances of international payments."

THE BLACK MARKET PROBLEM

In general the international gold situation is a fine example of trying to gallop in two directions at once. While the United States is understood to have protested to Canada on having to take more gold, when the American Smelting & Refining Co. in the middle of the year, began marketing in non-dollar non-sterling areas certain gold derived from foreign refractory ores, immediate steps were taken by the Government to stop the practice, and pressure was brought on both the British and the South African governments to stop "black market" operations in their gold.

At the same time, both the Federal, and the South African authorities assured the world that such a market was small, and that the exchange balances thus created and the profits to be derived by allowing such sales would be negligible. If so, why not let the gold vacuum in these foreign territories be filled up, as a step toward normal trade?

On Aug. 27, 1947, the last free market in gold in Europe was obliterated. In November 1946, the Swiss took off all restrictions on transactions in gold. But in March, in order to assist the International Monetary Fund in trying to curtail all "black market" operations in the metal (translation—"free market"), gold export licenses were no longer given except where national interests were concerned. The National Bank of Switzerland, however, continued over-the-counter sales subject to a brokerage of 5 per cent, and a sales tax of 4 per cent. These transactions were running about $2,500,000 weekly at the time of the interdiction of these operations on Aug. 27.

Great Britain and France both drew heavily on their gold balances during 1947, and the United States gold stock (mainly at Fort Knox) is over 20,000 tons. Restrictive legislation grows throughout the world on the possession of gold coins or bullion, so that one can look forward to a comparatively near future when the possession by private persons of gold coin or bullion anywhere will be a crime, and all transactions in them a black market operation.

REVALUATION OF THE PRICE OF GOLD

The year was marked by many rumors of revaluation by the United States of the price of gold to bring it in line with other commodities. While these have all been groundless, the mere existence of such a stock of gold as is now in our Government's hands, is almost a guarantee that sooner or later the Government will revalue gold and so partially offset the towering public debt. On Dec. 31, 1946, the United States gold reserve was about 586,000,000 oz.

While it has not amounted to a gold revaluation, the Russian devaluation of the ruble is an operation closely akin to this, though this has in addition been class legislation, in that bank balances under 3,000 rubles were undisturbed, on the next 7,000 rubles two new were given for three old, and on all balances over 10,000 rubles one new ruble for each two old. On cash in hand, which was what the farmers mainly had, one new ruble was given for each ten. On Russian bonds, holders of the 1938 issue receive one ruble for five, and on ordinary bonds one new ruble for each three.

SILVER PRODUCTION

Silver production, like that of gold, has been declining since 1940, when it was computed at 273,400,000 ounces. The 1946 production was about 124,895,000 oz., the 1947 is estimated at 110,000,000 oz. United States production was 21,377,000 oz. for 1946, and may be estimated at about 34,000,000 oz. for 1947. Mexican production was 48,298,000 oz. for 1946 and was probably about 48,000,000 oz. for 1947. Canada produced 12,870,000 oz. in 1946 and about 10,000,000 oz. in 1947. Outside of North America, the important production comes from Peru and Australia, 14,467,000 and 7,000,000, respectively, in 1946.

The impact of social security laws, of levies on gross production rather than on profits, and other restrictive legislation, together with an inability to find new ore-bodies of substantial size, led the United States Smelting, Refining & Mining Co. to sell its Real del Monte and Pachuca properties to the Mexican government for 10,000,000 pesos (about $2,000,000) in the latter half of 1947. These holdings almost deserve the overworked adjective of "fabulous." Their production to date is probably about 1,200,000,000 oz. of silver and 4,500,000 oz. of gold. They were discovered in 1522, and it was here that Bartolome de Medina developed the patio process in 1557, replaced by cyanidation in 1906. It may be surmised that there will be some sort of a subsidized operation there under Mexican Government management, but at any rate the 425 year-chapter of private management is closed.

COMMERCIAL USE AND PRICES OF SILVER

Consumption in the United States greatly exceeds domestic production, a large use being in photography where unfortunately there is a great permanent dispersion and loss of metal. (Our use, outside of coinage, is three to five times our production.) As a consequence there have been wide fluctuations in the price of foreign silver during the year. (Domestic silver has ruled unchanged since July 1, 1946, at 90.5c. per oz.)

Foreign silver opened the year at a price of 83¾c. in New York, and 55½d. per oz. in London. Handy & Harman made some very bearish forecasts as to its commercial use declining, and in three weeks the price had dropped to 70¾c. in New York, the London price remaining unchanged, but the price in New York was back, varying from 80 to 84½c. per oz. by early March, while London had fallen to 50d.

The Reserve Bank of India announced the prohibition of silver imports into that country at that time, causing an overnight break of 5⅜c. in New York and of 4¾d. in London, followed by a decline that carried the prices quickly to 70⅞c. New York; 44d. in London. On June 17, silver went to 68⅜c., the lowest price since Sept. 21, 1945, and continued its retreat until it was 61¾c. New York; 37d. London in late July. A revival of the jewelry trade in midsummer brought an upturn, resulting in a slow upward movement and finally a steady price of 74⅝c. New York; 45d. London in November and December.

The complete estimate of the use of silver in the United States in 1946, made by the American Bureau of Metal Statistics may be of interest; Coinage, 44,122,000 oz.; sterling ware, 50,000,000 oz.; plated, 6,800,000 oz.; nitrate (chiefly consumed in photography), 22,500,000 oz.; unclassified (brazing alloys, bearings, electrical contacts, dental and surgical use, jewelry, etc.), 25,700,000 oz.; total 149,122,000 oz.

The total stock of silver held by the U. S. Treasury on Dec. 31, 1946, was 1,950,520,000 oz. (66,874.2 tons).

PLATINUM METALS PRICES

Except for platinum itself, the platinum metals were comparatively quiet during the year. The prices quoted at the first of the year 1947 were: Platinum, $53 per oz., having been reduced $7 per oz. on Dec. 31, 1946; iridium, $110; rhodium, $125; ruthenium, $56; but by mid-January the price of platinum was $58-61 per oz., depending on the size of the lot, and ruthenium was up to $61. On April 14, platinum was marked up to $63-66, but on May 5 was reduced to $50-62, and on June 9 to $56-59. Iridium had during the period been slowly sinking to $85-90 per oz. An attempt was made to establish an option market in platinum on the Commodity Exchange in August, but the movement seemed to have no support and was formally abandoned in September. In late August, platinum moved to $63-66 and, in early September, it rose to $66-69. On Sept. 22, it dropped back to $62-65 and on the 29th to $59-62; but again rose on Oct. 20, to $62-65, and by mid-December it was again $66-69. Ruthenium by mid-December was also $66-69; iridium $80-85; osmium, $100 in a purely nominal market; palladium, $24; rhodium, $125.

PLATINUM PRODUCTION

What the platinum production of the world may be, only the Russians know. Russia was for a long period the largest producer of the metal, and possibly still may be, but no outsider knows. Canada had a peak production of 285,228 oz. in 1942, 130,400 in 1946. This is a by-product production and varies with International Nickel's base-metal output. Colombia in the 30's had a large alluvial output, reaching 115,100 oz. in 1937, but for the last few years it has been about 35,000 oz. (38,500 oz. in 1946). South Africa had an all time peak of 85,730 oz. in 1941; 55,490 in 1946. The United States had a peak production of 44,783 oz. in 1938, but produced only 24,600 oz. in 1946. This is mainly from placers, but is in part a by-product from refining copper.

What influence Russia can have on the market was shown in the second quarter of the year when the U.S.S.R. alone sent to the United States 60,981 oz. of platinum metals against a total from all sources of 74,749 oz. in the first quarter, of which 10,821 oz. came from the U.S.S.R. Total imports in the second quarter were 118,727 oz. Platinum and palladium are chiefly used in jewelry, though their uses in the chemical industry, in electrical manufacture, and in jewelry are important.

PLATINUM HOARDING

Apart from the fluctuations in platinum prices due to variations in the jewelry trade, there seems little doubt that platinum prices in 1947 have been somewhat the result of the rise and fall of a demand for the metal for hoarding. It is in several respects ideal for this purpose, as it is of high specific gravity and has a high price, so a good sized safe deposit box will hold $100,000 worth; it does not oxidize; is not affected by contact even with strong acids; and it is unaffected by an ordinary fire. On the other hand, there is not the universal knowledge concerning it that there is concerning gold, and undoubtedly its marketability to a great extent depends on industrial activity, which would not necessarily be present in an emergency. Nevertheless, the *Far Eastern Economic Review* believes that the increasing restrictions on the ownership of gold will drive more and more persons into hoarding platinum, and that from the long-range point of view, the platinum market is in a favorable position.

On this question of hoarding, it should again be pointed out that it is also a question what platinum stocks the Russians might suddenly throw into the world market. It is conceivable though unlikely that enough platinum might be in stock and might be thrown on the market seriously to affect platinum as an inflation hedge.

IRON AND STEEL

By Thomas C. Campbell
News-Markets Editor, *The Iron Age*

GENERAL

The public quarrel between steel leaders and government bureaus over steel capacity has led many people to believe that the industry is lying down on the job, that the gray market includes most steel sales, and that a big increase in steel capacity would solve every problem. There is no real basis for any of these impressions, but part of the responsibility for these widespread beliefs belongs to steel management.

At no time in history has the steel industry lain down less on the job than during 1947. The medal of merit goes to production men, engineers, and the sales force. The high officials have not done as well as they could in their official and public pronouncements. Perhaps the reason is that anything the Administration says releases an automatic "no" in the minds of most steel officials.

Most government men, however, have their automatic reflex, too. They seem inclined to think that steel heads do nothing but contrive ways to embarrass the Administration. This sideplay, which has gone on for years, and which has little or nothing to do with what is really happening in the industry, sometimes does harm.

In May 1947, it appeared from newspaper reports of steel leaders' statements that the steel industry was against expanding. The old studies were brought out, refurbished, and presented. The past was cited, the future was looked at through smoked glasses, and the industry was pegged, after its May annual meeting, as being opposed to expansion. The industry was accused of trying to keep supplies short in order to make more money and to contribute to another depression.

Taking the bait, more outbursts from steel officials cemented the idea in the minds of the public that steel had departed from the free-enterprise, American way of doing things. They gave credence to a belief that no more expansion was necessary; that we had arrived; that there never would be any demand that the industry could not take care of with present capacity.

Some of the industry's best friends began to feel that the steel leaders, if left alone, would put this country in the same plight as in England. Then the industry's "carpers" had a field day with such phrases as "more abundance," more for everyone, a greater national income, etc. All this was unnecessary because industry spokesmen did not mean what they said.

Too late to prevent harm, the industry heads came to the country *via* a Congressional hearing route with a story that the industry was expanding. It looked as though this was a yarn thought up to offset the unfortunate one circulated in May. It was nothing of the sort. Expansion, as usual, had been taking place long before capacity became a national issue.

Steel has always done things to bring more money into the coffers, more customers, and better customer relationships. It has always expanded year after year. The record proves it, and it is expanding now. It undoubtedly will expand next year, but it will not take advice as to how much or how little it will expand from people who, the industry feels, do not know anything about the business. Even that is beside the question.

There is no evidence that there is any deterrent to continual expansion in steel except possibly the high cost of buying new equipment, but that can be overcome. The contemplated East Coast plant of the United States Steel Corporation is now being held up because the cost of new equipment is far in excess of original estimates. Eventually that will be overcome by competitive conditions.

Along with the paradox of seeing steel leaders try to force their way out of the May maze is the mistaken notion that all steel men think alike. It took a Congressional hearing to bring out that they do not. It should have come out much before then. If it had, the tremendous pressure for allocations, price controls, and expansion plans would be far less potent than it is now.

An aroused public, an election-conscious Administration, and steel consumers who have gotten the short end of the stick have plenty of ammunition to fire at the industry, regardless of the truth or falsity of the charges. Below are the facts about steel capacity, steel production, and the gray market.

STEEL EXPANSION

Steel capacity is being expanded now. Part of this expansion will be by actual increase in open hearths, part by use of more blown metal from the bessemer, part by use of oxygen, cutting down melting time, and part by superior performance of existing equipment. Most of the remarks made by steel and government officials have little to do with the actual question of capacity. The engineers and workmen are taking care of it. Competitive conditions will add more zest soon to the capacity question. The drop in steel capacity after the war was a realistic elimination of equipment which was held in operation because of the war. It was obsolete, and there was no valid reason to keep it going during peacetime. New capacity from now on will be the kind that will mean more production, faster output, and better quality. There is no more reason to take the word of government experts on capacity than there is to believe some of the statements by steel die-hards. Somewhere in between is the answer —and that is the direction in which expansion is now heading.

PRODUCTION

Steel production in 1947, at about 85,000,000 tons, was the highest in any peacetime year. It is below the all-time high in 1944, but it should not be compared with that year. In wartime, there is only one customer—the government. The number of orders, the type, the size, and the destinations are far different in peacetime. They are more numerous and varied. On that basis performance in 1947 was the best in steel mill history. The men who did it would, 10 years ago, have raised their hands in horror if the same job had been handed to them. That is why 10 years from now the same thing will be true. Steelworkers, management included, are the most loyal, hardest working group of men in any industry. Generations stick to it, complain about it, consider other jobs, go on strike, but they stick to steelmaking.

GRAY MARKET

Steel leaders harmed themselves by, at first, closing their eyes to the existence of a gray market in steel. They knew little if anything about it a few years ago because they were not involved in it, but it existed long before OPA went out, and it broadened out as steel became tighter. Rumors had it much larger than it was. It was this fallacious view that steel officials were attacking. It looked to the public and to steel customers, however, as if they denied that there was a high premium market. Later, most steel officials in Washington did agree that a gray market existed and said they were doing everything they could to stamp it out.

~~In~~ peacetime it is no crime to sell what you have for more than you paid. That is what customers did in 1947. It is what many will do next year or until the demand for steel moderates. A survey by *The Iron Age* showed that about 4.3 per cent of the steel being used by consumers was bought in the gray market. Circulating inquiries received by many steel users gave rise to rumors of tonnages far out of line with what actually was bought and paid for at premium prices, but the existence of a gray market was serious because it supplied the ammunition for the charge that the industry was bungling the job of steel distribution.

GRAY MARKET PARADOX

First denying that the gray market was a factor, later admitting before Congress that it was a factor, steel leaders finally attempted to stamp it out as far as their products were concerned. Again the lag in clear-cut acknowledgment meant much shifting that was unnecessary. *Iron Age* men, searching diligently for more than a year, have found no evidence that steel producers were involved in gray market activities or countenanced them. There are a few companies well known for their premium priced ingots but this is no mystery.

One would think that with capacity troubles, irate customers, gray market charges, tight steel, high prices, and the Administration belaboring it, the steel industry would be thoroughly hated by most of its customers, yet the majority of steel customers think the steel industry is doing a good job.

There was much talk in the fall of 1946 about the coming recession, depression, correction. There has been little or no talk about it in recent weeks. Steel leaders, who a year ago felt that demand and supply would be in balance by July 1947, now think that it may be in October 1949. The sustained demand for steel has so puzzled all the experts and non-experts that predictions are worth little. No one knows.

STEEL DEMAND

There was a late surge in the fall for more steel because demand at the other end was holding up. How long steel requirements will keep ahead of the high level output is harder to guess at now than at any other time in history. Some half-hearted attempts have been made to view the near future as bringing a correction in present high prices. The long term outlook for steel firms is good.

Most people think that the industry is trying to take care of a potential demand that was unsatisfied because of war output. That is only half the story. Those who went through the late depression know that it is trying to satisfy a demand which has been growing since 1929. In the depression period, things wore out and were not replaced.

In 1937, the situation looked good, but in 1938 fabricators coasted along at a high rate of output—only they used the steel they bought in 1937 to support the coasting. Then came the war and another five years of waiting.

It seems hardly likely that two years of post-war activity will take care of a demand that has been pushed from pillar to post for 10 or 12 years. At least that is what some steel men think. It is their guess that when the reaction (correction, depression, or movement) comes, it will last only about a year. It will not be deep as far as steel is concerned, and it probably will be followed by at least three or four years of healthy steel output. It is as easy to believe this as the opposite, but a little more costly.

STEEL PRICES

Most steel customers have been so anxious to get steel they are not acutely concerned about prices. Some have paid so much in the gray market that they regard present mill prices with indulgence. Most of the furor about steel prices has come from the Administration. The government position is well taken but not when it thinks producers can make steel with no return for stockholders. Steel people have to take care of new mills, the price of which will scare the finance departments. It is true that the price of steel governs most prices of articles made from steel. Steel is the "rock," and it is easily the most vulnerable to attack. That is why the Administration seems ready to strike at the steel industry in every major crisis.

PIG IRON AND STEEL OUTPUT IN NET TONS

Year	Pig Iron	Steel
1947..........	58,528,000*	85,000,000*
1946..........	45,547,907	66,602,724
1945..........	54,919,000	79,391,000
1944..........	61,939,000	89,642,000
1943..........	62,769,947	88,836,366
1942..........	60,903,304	86,031,931
1941..........	56,686,604	82,839,259
1940..........	47,398,529	66,982,686
1939..........	35,677,097	52,798,714
1938..........	21,460,164	31,751,990
1937..........	41,582,550	56,636,945
1936..........	34,752,689	53,499,999
1935..........	23,937,423	38,183,705
1934..........	18,075,202	29,181,924
1933..........	14,947,074	26,020,229
1932..........	9,835,227	15,322,901
1931..........	20,637,516	29,058,961
1930..........	35,562,429	45,583,421
1929..........	47,727,661	63,205,490
1925..........	41,104,634	50,840,747
1920..........	41,357,105	47,188,886

* Estimated.

Steel prices (that part which the steel companies get) are not high in relation to everything else. They are manifestly low. They are some 40 per cent higher than they were in 1939, but weekly wages in steel were 98 per cent higher in 1947 than they were in 1939. The gray marketeers blithely add $150 a ton to the mill price and succeed in getting it. It may well be asked why steel companies do not raise prices to what the traffic will bear. That is supposed to be free enterprise. If the steel companies are what some people say they are why are they so disturbed everytime price is mentioned. The people who buy steel are not the ones who protest high prices. In a survey made early in 1947 it was remarkable that only 68.7 per cent of those steel consumers who were questioned thought steel prices too high. Even in that case some meant gray market prices. About 31.5 per cent said they were not too high or that they were about right.

THE PRICE PROBLEM

There must be some reason why the steel companies have not priced themselves out of the market. There are several obvious reasons. If steel prices are too high, competitors may take away some of each others business. If the price is raised too high a long-term customer relationship may end. If the price of steel is raised too much, labor or the government may take a large part of it. Each steel firm knows that the moment it takes an unfair advantage of the present situation, people will stop buying steel, the mills will get less orders, men will be laid off. What some pugnacious steel men want to know, however, is why not let this happen quickly instead of prolonging it when the end will be the same anyway. The answer to that is the "end" might and probably would not be the same. Steel management will have a difficult time figuring out what to do—give a wage increase and raise prices again or take full advantage of the contract, knowing well that there will be trouble. Probably there will be a wage increase, and a moderate and selective increase in prices on items which are steadily losing money such as ingots, semi-finished steels, coated sheets, etc.

ALLOY STEEL OUTPUT

(Thousands of Net Tons)

	Open Hearth	Per Cent of Total	Electric	Per Cent of Total	Total
1939	2,459	76.7	749	23.3	3,208
1940	3,675	74.0	1,288	26.0	4,963
1941	5,740	70.1	2,462	30.0	8,202
1942	8,133	70.6	3,393	29.4	11,526
1943	9,217	70.1	3,933	29.9	13,150
1944	7,010	65.9	3,623	34.1	10,633
1945	5,847	67.6	2,801	32.4	8,648
1946	4,398	73.0	1,637	27.0	6,025
1947	5,600	76.1	1,800	23.9	7,400

TOTAL STEEL OUTPUT

(Thousands of Net Tons)

	Alloy	Per Cent of Total	Carbon	Per Cent of Total	Total
1939	3,212	6.1	49,587	93.9	52,799
1940	4,966	7.4	62,017	92.6	66,983
1941	8,206	10.0	74,633	90.0	82,839
1942	11,526	13.4	74,506	86.6	86,032
1943	13,150	14.9	75,235	85.1	88,385
1944	10,633	11.9	79,009	88.1	89,642
1945	8,648	10.9	70,743	89.1	79,391
1946	6,025	9.1	59,875	90.9	65,900
1947	7,400	8.7	77,600	91.3	85,000

COAL AND COKE

By R. Dawson Hall
Mining Editor and Author

BITUMINOUS PRODUCTION

Conditions were favorable to the bituminous coal industry in 1947. The bituminous and lignite mines together produced about 619,000,000 tons as against 533,922,068 tons in 1946, an increase of 15.9 per cent. The gain in output would have been still more had there been no *in memoriam* and safety suspensions, no shorter working days and no holidays, and if car service had been adequate. Some of the mines toward the end of the year were idle three or four days a week for lack of railroad cars, and some coal companies were stocking coal near the mines, despite the many unfortunate experiences with that practice recorded in coal history. This time, however, the export and domestic demand appears likely to absorb these stocks before fire destroys them, if railroad cars can be obtained to move them. Coal stocked in the winter usually gives no trouble until summer. Vacations also promise a favorable time for selling the coal out of storage, because railroad cars will then be available for transportation. Prominent among the stock piles established were those at the Blaine mine of the Lorain Coal & Dock Co. where the coal was trucked to a storage pile and at the Willow Grove and Dun Glen mines of the Hanna Coal Co. of Ohio whence the coal was hauled in trucks to an outdoor reservoir. The Pittsburgh-Consolidation Coal Co. moved some coal by truck to market.

ANTHRACITE AND COKE PRODUCTION

Anthracite production totaled in 1947 about 57,000,000 tons as against 60,506,873 tons in 1946, a decrease of 5.8 per cent. These figures include colliery fuel, coal from washeries which separate good coal from stored refuse and undersize, coal reclaimed from the river bottoms, and coal shipped by truck from authorized operations.

Beehive coke production was 6,536,900 tons in 1947 as against 4,568,401 tons in 1946, a gain of 43.0 per cent. The output of byproduct coke also increased. In the calendar year to November, 1947, the production was 60,490,899 tons and in 1946 for the same period it was 49,132,400 tons, a gain of 23.1 per cent. Figures for the entire year are not available.

Exports had much to do with the activity of bituminous mines. Statistics are not available for the full year but for shipments made from January to October 1947, they are as in the following table:

U. S. COAL EXPORTS

(January to October, inclusive, 1947)

Destination	Anthracite	Bituminous	Coke
North and Central America	3,700,383	22,629,273	504,518
South America	27,279	2,503,406	54,109
Europe	3,384,553	31,052,327	117,372
Asia	38,799	308,107	2,584
Australia and Oceania	—	96,969	—
Africa	13,139	1,843,190	3,513
Total (January to October Inclusive)	7,164,153	58,433,272	682,076

Probably, the United States in the course of the entire year exported about 37,000,000 tons of bituminous coal to Europe, Asia, and Africa. Figures for briquetted fuel in 1947 are not available but, in 1946, the output of the 35 plants operating was 3,004,027 tons. Only 653 tons were imported and 163,339 tons were exported. Tonnage has been increasing but exports declined in 1946, probably because of exchange difficulties.

LABOR MATTERS

At the start of 1947, all the nation's coal mine workers were fully employed, for John L. Lewis, president of the United Mine Workers of America, on Dec. 7, 1946, had ordered the bituminous and lignite miners in his union to go back to work and stay there until March 31, 1947, thereby all but ordering a strike at that latter time. This he did, as a result apparently of a judgment rendered, Dec. 4, 1946, by Judge T. Alan Goldsborough, of the U. S. District Court for the District of Columbia, which judgment imposed, on Lewis, a personal fine of $10,000 and, on his union, a fine of $3,500,000, for having disobeyed a restraining order issued by the former, on Nov. 18.

The strike had lasted 17 days, but its effect had been cushioned somewhat by the fact that the anthracite mines were not involved, nor were the workers in non-union strip pits nor the members of the Progressive Mine Workers of America nor some few non-union mine workers.

The prospect of peace during 1947 was overshadowed, however, by the knowledge that the bituminous-lignitic contract, which Lewis had declared terminated, (1) might be regarded by the union as void after March 31, the usual date for such soft-coal contracts to lapse, or (2) might be voided on June 30, under the terms of the Smith-Conally Labor Disputes Act, the Government, on that date, having held the mines for a full year, or (3) might terminate at any time, prior to June 30, should the Government decide to hand over the mines to their respective owners.

The miners were known to be seeking concessions, even more generous than those provided by the so-called Krug-Lewis contract under which they were so abundantly thriving. It had been imposed on the mine operators, much to their distress, by J. A. Krug, Secretary of the Interior and Solid Fuels Administrator. The operators objected to the terms of the agreement, not so much because they feared for their immediate profits and cash balances, which readily could be made secure by increased prices, but because they well knew that the high wages and liberal concessions thus granted would be a basis for a still higher increase in wages and privileges when future contracts had to be signed. In consequence, they visualized a wage structure that would make coal prices so high that the industry could not survive, being exposed to competition from rival fuels, competition that they, the operators, already had not been able to meet successfully and could certainly not meet when the demand for fuel in the United States and Europe should decline.

MECHANICAL ADVANCES

When the shuttle car with its rubber-tired wheels was introduced into underground bituminous coal mines, it displaced the tracks at the mine face and foreshadowed further advances in trackless face operations. This has gradually come about, though more such mines have room tracks than have the newer auto-truck service. Now, it appears that all facilities at the face will run on tires, including loaders, cutters, supply trucks, drilling machines, and the newest of innovations, the timbering machine. Many of them do so already.

However, another development may displace many of these rubber-tired machines, namely, the introduction of a system of mining with an all-purpose machine that will not leave a mine chamber until the pillars have been drawn. This machine will cut the face and drill it for shooting or break it down without shooting, will load the coal on a conveyor, will help to cross-timber the roof, and do anything else that may be necessary.

A piece of equipment known as a Shortwaloader undercuts the face like any ordinary shortwall cutter, but does it with a cutter bar of about twice the length of that provided with the usual shortwall machine. However, it cuts only to the usual depth. Then, the machine pulls away from the face and moves back to the original position, and the coal face is shot. All this is preliminary to the machine's first cycle of operation. Then the Shortwaloader moves across the face cutting a swath to usual depth as it goes. Meantime, two loading bars, half the length of the cutter bar and operating much as the cutter does, pull the product away from the fallen mass of coal at the face and deliver it to a room conveyor which in turn carries it to a car or to a heading conveyor. Thus, provision is made in one unit for both cutting and loading and in a smaller degree for transportation also.

New arrivals among all-purpose machines are (1) the Julian, or Crawford, machine which has, near its base (a) two undercutting units, each of which makes a quarter segment under the coal meeting in the center line of the heading to make a full semicircle cut, (b) two picks at the top to bring the coal down, and (c) a conveyor to take the coal away; (2) the machine designed by K. L. Konnerth, assistant to the president, H. C. Frick Coke Co., Pittsburgh, Pa., which is still in the experimental stage. It undercuts the coal with a pear-shaped cutter bar and uses pressure and the vibration of hammer blows (1,000 to 2,000 per minute) to bring the coal down. As the coal falls, the machine scoops it up and carries it away. The Konnerth machine is planned to move itself across the face by ropes and jacks like a shortwall cutter. Note that the machine is sponsored by the same steel-company affiliate as was the O'Toole machine. The finer the coal, the better suited for coke-making.

The coal planer or plow is used in a modified longwall face of great length, the plane being pulled along the bottom third or two-thirds of the coal bed, parallel to a conveyor into which the plane discharges the coal as it is cut. The plane cuts a swath 12 in. deep into the 670-ft. face and pushes the coal thus dislodged into the conveyor. The rest of the slice between plow and top of coal may fall likewise, but it may hang instead and have to be dislodged by crowbars and loaded on the return trip. It may not work as well here as in Germany, for anthracite is far less easy to cut than German coal.

TIMBERING IMPROVEMENTS

Another pressing problem in underground operation has been the placement of temporary timbers at the mine faces in such a manner as to save time and also afford maximum safety, despite the length and width of the space needed for the maneuvering of the huge machines now employed. After the machines have moved forward, posts can be set which will support the roof even more effectually, but that is impossible so long as machines are working at the face.

As 60 per cent of the fatalities at coal mines result from roof falls, timbering is one of mining's most baffling problems, to say nothing regarding the delays which the setting of timbers involves, the dangers also of such delays, and the costs thus incurred. Mechanical loading with its space needs, its noise that deadens the sound which a strained roof will emit, and the rush and mental absorption of the employees, has increased roof hazards materially.

At first, it seemed that reliance must be placed today on long timbers or metal beams supported either on posts at the ribs or resting in notches cut in coal or slate. Posts, however, (1) interfere with the machine, making difficult the final clean up of the fallen coal in the place, (2) may be knocked out by the mechanical loader's shovel or claws or by the shuttle cars, and (3) notches in the rib for beam support are not easily made, except by the introduction of another machine, with still more complication and delays, all of which spell loss of time and danger. Heavy pins that serve as brackets are driven into drillholes sunk by the same machine as is used to bore holes for shooting, which machine, however, is equipped with augers of less diameter and length when it has to be used for this special service. The pins serve the purpose almost as well as the more elaborate notches, and are easier to make because they can be drilled.

At Arkwright Mine, of the Consolidation Coal Co., Morgantown, W. Va., where the valueless roaf coal (8 to 12 in. thick), the draw slate (1 to 3 ft. thick) and the "wild" coal (8 to 12 in. thick) all need immediate support, if not taken down, steel pins (1½ in. in diameter and 15 in. long) are placed in the coal rib in holes drilled 2 ft. above the floor, so that they will project 1 to 4 in. from the rib. They serve as seats for pole-like steel jacks which, resting on their inverted U bases, support in turn the cross timbers by which the menacing roof is temporarily to be supported. Five wood cross beams are always positioned in front of the face, being moved forward, one by one, as the face is advanced.

In Federal No. 1 Mine, of the Eastern Gas & Fuel Associates, Grant Town, W. Va., steel pins are placed under the end of the center line of each cross beam, and a mine tie is laid on pairs of such pins. Two cross beams rest on the two ends of the opposing ties, being laid on them, immediately over the ends of the pins. Six cross beams are kept in front of each face. Sometimes, however, the pins are set at the middle of the coal bed and screw jacks are then set between pin and cross beam, much as at the Arkwright Mine.

At Ebensburg, No. 1 Mine, of the Ebensburg Coal Co., Culver, Pa., two holes are drilled near the roof near each other and a 1¼ in. pin, shaped like a bridle enters both holes and between the holes supports one end of a steel cross beam. Several variations have been devised at the many mines where pin supports have come into favor.

But all this has not met the difficulty that long cross beams are heavy and require many men to put them in place. The first proviso was to use lighter materials, and several aluminum beams have been used wherever long beams have been needed. These beams are expensive, but after all, only a few such beams are used in any working face, as they can be moved up and replaced by posts as the working face advances. Screw jacks also occasionally are made of aluminum.

However, quite recently mechanical timbering devices have been introduced. Of these, there are many kinds, some of crude design. A modern type has (1) an automatic hydraulically driven cable reel to supply power for locomotion for spotting the beam and for sawing the timber to the required length, (2) a telescoping jack that lifts the timber and holds it in place, (3) room on the truck for a day's timber supply, (4) a 24-in. circular saw for cutting posts and beams, and (5) a second jack which can be extended to the mine floor, if necessary, to prevent the tilting of the mechanism. Another machine has two pivoted arms in place of the jack which, when raised, lift the timber to any level desired. The employment of from one to four men in a timbering crew can be saved by such timbering devices.

MINING CONGRESS ACTIVITY

As in Great Britain, so in the United States, committees have been formed to study operational methods and to report on them. This is being done here under the aegis of American Mining Congress. These committees are studying (1) conveyor mining, (2) haulage roads, (3) mechanical loading, (4) power, (5) roof action, (6) safety, (7) surface preparation, and (8) ventilation. Two of these committees, (3) and (5), have combined to study (9) pillar recovery. The suggestion has been made that speedy extraction is desirable with a weak roof and a slower extraction with a stronger roof, but the strength of the immediate, or lower, roof, or "ceiling," whatever it should be termed, is usually the only matter considered until, under undue weight, the pillars collapse, and a bump or coal burst occurs. No artificial support, says the report, can prevent the movement of the main roof; complete backfilling only limits it and makes it more regular and less evident on the surface. At a mine in Illinois with a strong main roof and a thick but weak ceiling, an effort is being made to hold the ceiling by hanger rods anchored with expansion sleeves to a strong overlying stratum.

VENTILATION

As it has been found that an ignition of methane often is a prelude to a coal-dust explosion and that methane renders rock dust less potent as a means of controlling coal-dust explosions when they occur, interest in ventilation is increasing. Many mines are returning the air from their live workings through abandoned sections (goaf) so as to keep the methanized air as far as possible from sparking trolley wires and to carry the air back toward the surface with less resistance. So-called "bleeder headings" for removing the air from the goaf are driven on three sides of that area to bleed off the air from these abandoned areas to the untraveled return headings of the main level entries.

In some instances, it is necessary to erect temporary stoppings and, for this, 4x8x16-in. cement-blocks with tongue-and-groove ends are used to make a 4-in. wall. A thin spread of weak mortar is laid on the horizontal joints and then one side of the wall is plastered, also with thin mortar. Where a section of wall, still more impermanent, is desired, as for the passage of a pan line through the wall, it is laid without broken joints and with ¾-in. wooden strips at the ends and, when the pan line is installed, a thick brattice is hung from a crossbar laid over the section when the stopping is constructed. The blocks can be used four or five times.

A plastic film, such as was used by the Navy to protect airplanes, anti-aircraft guns, naval vessels and machine tools has recently been applied by spraying to a leaky stopping by the Lorado Coal Mining Co., Lorado, W. Va. Two films were used, one containing a webbing agent which produced long cobweb-like filaments that adhered to the stopping and then one without the agent that converted the web into an even film. Being very flexible, the film will stretch about three times its length and still be airtight. Its tensile strength is 1,750 to 2,000 lb. per square inch, and mildew, many molds, salts and acids do not attack it. Unfortunately, its solvents are flammable and open lights must be kept away until sometime after the job is completed. Application to mine equipment, overcasts and curtain walls is suggested.

In methanous mines, at the end of every working place, a row of posts supports a strip of wood near the roof from which is suspended a line of brattice cloth reaching to the floor. This so divides the place that the air can be compelled to travel up to the face and back again. Instead of posts, a line of spads recently has been used over which the line of brattice cloth is laid and held by nails which are thrust through the cloth about an inch from its upper edge. The brattice cloth can be attached in the same way at its lower edge or for other applications, its edges also.

At the Lancashire No. 15 mine, Barnes & Tucker Co., Barnesboro, Pa., undercasts have been used where the air had to cross a heading in which a belt was operating. Common enough in Europe, they are almost unknown here. Barnes & Tucker proved them to be successful and much less expensive than overcasts.

When Willow Grove No. 10 Mine,

Hanna Coal Co. of Ohio, near St. Clairsville, O., put in a new shaft for the entry of men, it was necessary to screen the haulway or the air would pass down the shaft into the mine. Accordingly, a collapsible revolving door was provided to permit of the entry of persons without the admission of air. The shaft is 175 ft. deep, so the roof pressures on the frame of the door are not extreme.

SHAFT SINKING

For better ventilation, greater safety and to shorten the underground-travel time of employees, which is important now that such time, under the portal-to-portal provision, has to be compensated. At the Hubbard mine, Greensburg-Connellsville Coal Co., McKeesport, Pa., for instance, underground travel time has been shortened 1¾ hours. At this mine, the main haul is over 4½ miles long, and the employees have been spending 2 hours and 12 minutes on their way to and from work. The old fan was driven by a 150-hp. motor at a 5.5-in. water gage, a high pressure for an American coal mine. Now two propeller fans, with 60- and 25-hp. motors respectively, will ventilate the mine at a water gage of 1.5 in., reducing the horsepower to be imposed on the air 61.3 per cent.

Vesta No. 5 mine, Jones & Laughlin Steel Corporation, Fredericktown, Pa. which will ultimately take over the operations of Vesta No. 4 is being reconstructed and a shaft, 550 ft. deep, is to be constructed when the mine has progressed sufficiently beyond that point. The length of the main haul in No. 4 to the slope bottom is 10 mi., but to reach it from No. 5 portal is only 7 mi., because the Monongahela River on the banks of which both mine mouths are located puts in a deep salient on the flank of No. 4. Ultimately, the length of the main haul will be 12 mi. and to the remotest corner will be 13 mi. A distance of 2 mi. between shafts is the Vesta standard. In aggregate, in Vesta Nos. 4 and 5, there are no less than six shafts, three for air, one for slate and two more, each of which is for passage of both men and supplies. Another shaft, either completed or nearly completed, the Greenlee, is for air, men and supplies, and yet, as stated, the plans for reconstruction call for a future shaft 550 ft. deep toward the rear of the property.

SAFETY PRECAUTIONS

Six disasters in 1947, each causing more than five deaths, include the following: Jan. 15, Nottingham colliery, Glen Alden Coal Co., Plymouth, Pa., 15 men killed, methane explosion; March 25, No. 5 mine, Centralia Coal Co., Centralia, Ill., 111 men, coal-dust explosion; April 10, Schooley colliery, Panzitta Coal Co., Exeter, Pa. 9 men, methane explosion; April 30, Spring Hill mine, Terre Haute, Ind., 8 men, explosion; July 24 No. 8 mine, Old Ben Coal Corp., West Frankfort, Ill., 27 men, methane explosion; Dec. 11, Franklin colliery, Lehigh Valley Coal Co., Wilkes Barre, Pa., 8 men, methane explosion. In the case of the Centralia Coal Co., the owners were fined $1,000 on charges of "wilful neglect," July 8. The Spring Hill mine had been closed down on orders of the Secretary of the Interior. An air shaft was being sunk and other corrective work done when the explosion occurred.

To increase safety in operation at Royalton Mine, No. 7, Franklin County Coal Corp., Royalton, Ill., vertical holes have been drilled from the surface into old workings, so that the methane there generated can pass out to the external atmosphere direct and promptly rather than slowly by way of live operations, where men and locomotives are present. Like many other companies, it has replaced tracks and mine cars at the face by shuttle-car haulage, thus keeping trolley locomotives away from the major sources of methane. Instead of using explosives for bringing down the coal, high-pressure air has been substituted.

Because of the drill holes, any leakage of air into old workings sweeps the methane out of the abandoned workings and to the surface, *via* these holes which are of 6 in. diameter. In each hole is a 4-in. pipe encased in cement mortar, which pipe extends 20 ft. above ground with a solid cap at the end. The last 3-ft. section is perforated with ¼-in. holes. A copious flow of methane leaves the pipe, especially at times of lowering barometer when the air in the mine expands rapidly. Now, near the abandoned areas, the air never contains enough methane to cause a safety lamp to show a methane cap, and percentages of methane in the return air have been reduced 70 per cent. Eventually, every sealed area will be provided with at least one vent pipe—a worthwhile innovation.

Shooting several shots at the same time is a safe and desirable practice, but it has been disapproved by the U. S. Bureau of Mines Code, because until recently, every method that pronounced itself absolutely synchronous resulted in shots that were exploded at different times as measured in milli-seconds. In that brief period, some coal might have detached itself and weakened a wall of another, and later, shot in one or more directions and an ignition might result from the escape of uncontained flame.

The Bureau, in R.I. 4136, announced, Nov. 6, 1947, that its engineers had designed a multi-shot blasting unit which could be designated "permissible" and yet one that would fire ten detonators in series. Known as of a "capacity-battery type," it can be used with either battery or generator. Tested at the Bruceton (Pa.) Experimental Mine it appears that, with a current of 50 volts or less, a multiple shot fired with such a battery would not ignite an 8-per cent mixture of methane and air. A cap-lamp battery producing a 4-volt current or less proves a reliable source of energy for the unit.

Several single shots generate more noxious gases and put more dust in suspension than would a multiple shot, which latter shot would also require less powder. Firing one shot at a time reduces speed of operation, because the fumes and poisonous gases have to be carried away between shots, and an examination of the roof must be made by the shotfirer for his own protection and a safety-lamp test made of the air to assure him that its methane content is low enough that it will not ignite or explode.

PREPARATION OF COAL

The preparation committee of the American Mining Congress is tackling "full-seam mining," in which all that comes in mining goes to the preparation plant—coal, bone, pyrite and shale. Less selection of good from bad at the face and greater convenience in loading are matched against more material to transport and more cleaning in the preparation plant. Then also, it is necessary to consider whether the coal will be as clean with full-seam mining as with more preparation at the room face and closer selection as to what coal should be loaded and what left.

New types of equipment are invading the coal-preparation field. The Hudson Coal Co. at its Powderly Colliery, near Carbondale, Pa. has introduced 48 Humphreys' spiral concentrators, which equipment has been quite successful in cleaning heavy minerals, but has never before been tried as a means of cleaning coal. At Powderly Colliery, the plant cleans 750 tons of anthracite daily, 75 to 85 per cent of which passes through a 28-mesh screen. Some of the coal comes from storage and some from the thickener underflow of the Powderly plant. Nothing coarser than 3/16 in. is treated in these concentrators.

An oil-flotation plant at No. 7 colliery, Susquehanna Collieries, Nanticoke, Pa., put in commercial operation in February 1947, is cleaning, in 18 Steffensen flotation cells with light-fuel and pine oils, 320 tons daily of minus 28-mesh silt of which 65 per cent is recovered with 13 to 14 per cent of ash. At the Pittsburgh-Consolidation Coal Co.'s Champion No. 1

plant, Champion, Pa., a heavy-medium cleaning pilot plant is operating. Magnetite in water is that medium. To remove the magnetite in the washings, which consist of water, magnetite, fine coal and fine refuse, these washings are passed through magnetizing blocks, which concentrate the solids into flocs. The magnetite is then removed from the thickened washings by magnetic separators and passed through a demagnetizing coil to deflocculate the material, thus making it ready for reuse.

Four washeries are using Baum jigs so designed as to fill the interstitial spaces in the jig bed with ⅛x0-in. coal, thus providing heavy-medium washing. They give, it is said, recoveries at least equaling those shown possible by laboratory float-and-sink tests. A type of jig stroke is provided in which the entire separation occurs in the suction stroke, which holding the medium in the bed prevents the jig from washing it over with the larger coal. This medium is obtained by screening and crushing the product of the last refuse elevator and feeding to the washer the ⅛x0-in. product thereby resulting. The float in the first compartment automatically rejects any excess.

More and more coal is being recovered from mine and tipple refuse. To clean such coal in one Winding Gulf operation, all the plus 3-in. refuse was crushed to minus 3-in., thus splitting the coal from the bone. This product was washed in an 8-ft. Menzies cone with 3x½-in. coal. The Hydroseparator was used to clean the 3x½-in. refuse from this cone. The product, which contained 20 per cent ash was sent to the power plant. This practice displaced nine slate pickers.

Operating a Crescent washer with calcium chloride as heavy medium, though fireclay and garden soil also can be used, the Six K Coal Corporation plant, Clarksburg, W. V., has been preparing picking-table refuse, road cleanings and bank material for market, so effectively that the product equals or excels its natural deep-mine output.

STRIPPING PROGRESS

Many earth-moving contractors—road makers, foundation excavators, etc.—were attracted to the coal-stripping industry during the war, their own particular branch of earth moving having failed them. They had no previous stripping experience and no big excavators, and accordingly they went to the work with a prejudice in favor of the tools they had available, but they made good and have given the industry many new ideas. One would hardly have anticipated the boldness and success with which they assailed deep cuts with small machinery. For the most part, they chose the jobs with light cover—outcrop strippings—and becoming bolder tackled even deeper cover, but almost always they chose places where they had easy access to areas suitable for depositing spoil.

At Clarksburg, W. Va., a 10-ft. bed of outcropping steam coal, lying under up to 60 ft. of cover, consisting of both earth and rock, is being stripped by bulldozers and diesel-powered tractors. The crawler tractors also push back the earth they have carried. At Punxsutawney, Pa., 62 ft. of cover is the maximum. There crawler-mounted tractors and rubber-tired scrapers and bulldozers are used, but the rock is not hard and the outcrop not far distant.

At another stripping, this one in Ohio, the yawning space left when the 3 to 6 ft. of stripped coal has been loaded out, is overfilled with spoil to a depth of 12 ft. to form a berm, or platform, from which the stripper's 2½-cu. yd. diesel shovel can operate. Though the shovel has a boom only 45 ft. long, it can remove 45 ft. of cover, because the berm is at a higher level than the top of the coal.

But perhaps a strip pit at Big Horn, 12 mi. east of Sheridan in the Powder River field of Wyoming is the most amazing of all strippings with light equipment. This is not an outcrop stripping. Two sub-bituminous coal beds each 10 ft. thick separated by a foot of barren material are covered by 30 ft. of tough springy gray shale, and over that lies a bed of scoriae from the burning of an upper coal bed and from the dehydration of the shale cover that resulted. The total overburden is 55 to 85 ft. thick and the pit includes in its equipment only a single shovel which, with only a 3-cu. yd. dipper, loads the coal and most of the shale. There are also Tournapulls, caterpillar tractors, rooters, trucks and the like that transport the spoil and the rest of the shale. This equipment will be returned to construction work, and a diesel-powered walking dragline will replace it, but meantime it has shown what such small units can do. Of course, scoriae are easily scraped, the coal beds are thick and markets favorably located, but such an operation nevertheless is phenomenal.

Forty-cu.yd. shovels are still the largest in the strip-pit fields, doubtless the largest in the entire world, though the 50-cu.yd. shovel is likely at any time to emerge from the drafting board, a shovel that with one gulp will take a chunk of earth 11x11x11 ft. At least, three 40-cu.yd. buckets were installed in 1947. A 30-cu.yd. dragline bucket, said to be the world's largest, was put in service by the Northern Illinois Coal Co., Wilmington, Ill. Draglines have such long booms (150 to 200 ft. long) that their bucket sizes have lagged, and will lag, behind those of the shovels, the booms of which never exceed a length of 120 ft.

One strip mine has installed a tower excavator to reduce the height from which the shovel must take its spoil and to increase the distance the upper cover is transported, and thereby reduce both high-wall and spoil slides. The tower excavator consists of a drag scraper traveling between two self-propelling towers, one on the bank beyond the high wall and one well back on the spoil. The scraper cuts down into the bank, carries the surface material over to a point toward the rear of the spoil and dumps it there, reducing the height of the high wall and so fitting the height of that wall to the capacity of the shovel.

In the Mansfield area of Arkansas, a stripping exposes three benches of coal successively. The lowest of these benches, 2 ft. thick, is not shot but is broken apart by a scissors device termed an "air breaker." The lower end of the tightly closed shears is thrust to the bottom of a 3½-in. hole drilled vertically into the coal bench. The top ends of the scissors' legs above the pivot are then thrust apart by admitting air at 90- to 120-lb. pressure behind a piston in a cylinder of 10-in. diameter and 12-in. long, thus opening the shears. The legs below the pivot are thus also thrust apart, breaking down the coal. As two men can "air-break" 600 tons of coal daily, a big saving over powder shooting is attained.

STRIPPING LEGISLATION

Despite proofs that bituminous strippings in the not-so-long run revive and beautify rather than destroy land, anti-stripping bills were numerous in 1947, spurred by the activity of this branch of the coal industry during the war and thereafter. Stripping mines now produce nearly 20 per cent of the coal tonnage, and the appearance of strippings immediately, and for some time after completion, is distressing because the top soil no longer has either nitrogen or seeds for the re-creation of vegetal life.

At the turn of the year, the attorney-general of the State of Indiana ruled that the county planning commission of Daviess County could not be given the desired authority over mining licenses superseding the state statutes. Had the Daviess County commission been successful, other commissions in Indiana might have followed suit.

An amendment to the State Senate bill No. 17 prohibited any ordinance, which, outside urban areas, would prevent the owner from alienating or making a complete use of any mineral resources or forests. During a hearing by the State House, the operators declared that mining would extract more value from the land in a few months than the farmers would in 300 years, rich as the soil is at the junction of the overflowing forks of the White River.

An Ohio stripping bill, after receiving 14 months of study by a special commission, was introduced in the legislature of that state, Jan. 11, 1947, and was then made even more drastic and finally was whittled down, passed and signed, June 28. It provides for (1) the licensing of all operators who mine more than 250 tons a year, (2) the posting of a bond of $100 an acre to guarantee compliance with restoration provisions, (3) the leveling of spoil-bank peaks to a top width of 15 ft., (4) the covering of all exposed coal with 15 ft. of cover, (5) the sealing of all breakthroughs into underground workings and (6) the planting of trees, grasses and shrubs at a cost not to exceed $50 per acre, unless the director of the agricultural experiment station decides the land is of no value and need not be restored.

On June 30, 1947, Governor Duff signed the Pennsylvania Anthracite Strip Mining Law. A license fee of $25 has to be paid per acre for the area which the stripper expects to uncover during the year ahead. In no case shall this be less than $100. The fee is not recoverable. He must also file a bond with the Department of Mines for $200 per acre (minimum bond $2,000) as a guarantee that the ground will be backfilled for 75 ft. from the centerline of any public highway, 200 ft. from any dwelling and also enough to cover any exposed coal bed.

Peaks and ridges of all spoil banks are to be so leveled and rounded that trees, shrubs and grasses can be planted on them. This must be done within a year. The stripper may arrange to do the planting himself or he may pay the Department of Forests and Waters to do it for $60 per acre, with the understanding that he will not be asked to pay more if the work can not be done for $60.

RESEARCH

Four highlights in the research history of 1947 were (1) gasification of coal in tests made in its natural bed at Gorgas, Ala., (2) the letting of a contract for a $500,000 pilot plant at Library, Pa. by the Pittsburgh Consolidation Coal Co., to be used for coal gasification, (3) the assurance that a Federal Anthracite Laboratory would be completed by about July, 1948, and (4) the preparations for the establishment by the Government of a coal-to-oil plant at Louisiana, Mo.

The experiment at Gorgas was made in the Pratt coal, a good coking bed, 35 in. thick and practically level, underlying an irregular hilltop, measuring 350x450 ft. Two trenches were cut in the 20-ft. cover over the coal bed and, in each trench, the coal was removed for a width of 6 ft., thus simulating a 6-ft. heading. One "heading" was 143 ft. long and the other 171 ft. On the inby end, a crosscut similarly was trenched joining the "headings" and creating a pillar, 150 ft. long and 40-ft. wide. The headings and crosscut were narrowed by depositing bags of rock dust on the outer edges of these passages so as to reduce the "heading" width to 2 ft., thus speeding the flow of the combustion gases and preventing the fire from passing to the rest of the coal in the hillock. Five rows of four drillholes were sunk through the cover to the coal bed at 10-ft. centers and lined with 4-in. pipe. The pillar coal was ignited, Jan. 21, 1947 by dropping a Thermit bomb down one of the boreholes in the crosscut where the coal had been broken and where other Thermit bombs had been planted. Air and gas were circulated through this "mine" and the ventilation was reversed periodically.

The following conclusions were reached: (1) that combustion can be maintained, using up nearly all the oxygen, in a passage 300 ft. long or less, (2) that the precombustion coke is suitable for making producer or water gas, (3) that there is little or no loss in underground gasification, (4) that for best results, higher temperatures over wide areas are needed to get gas of maximum heat content, (5) that falls of roof after burning do not stop air flow or combustion but boost back pressure on the blower. Heating value of the gas averaged 45.6 B.t.u. per cubic foot when only air is supplied and usually more than 200 B.t.u. during steam runs. Sometimes the gases approached 290 B.t.u. per cubic ft. Tests were made with air, oxygen-enriched air, air-oxygen-steam, oxygen-steam and steam alone. It is estimated that 236 tons of coal burned completely and 164 tons coked. Coke appeared only where combustion was arrested.

The pilot plant project Library which is designed to produce 1,000,000 cu. ft. of synthesis gas daily is a joint operation with the Standard Oil Development Co.

Anthracite Laboratory near Schuylkill Haven is a $450,000 project dates back to 1942 when Congress in Public Law 812 authorized the erection of the building, but the war intervened. On Jan. 10, 1947, Secretary Krug announced Hazleton as the site. A disagreement as to this decision arose and the House of Representatives on April 26 voted to eliminate the appropriation, but later in the year, it was announced that the site would be near Schuylkill Haven, that Congress had appropriated $175,000 for the first year's maintenance, staff salaries and research and that the building would probably be completed by July 1948.

At Louisiana, Mo., where the U. S. Government has its Missouri Ordnance Works, the Department of the Interior, in the late winter of 1946-1947, let contracts for the design and construction of a pilot plant to study and demonstrate the conversion of coal into oil. This plant should be in operation in midsummer of 1948. About 200 bbl. of oil or gasoline would be made daily. The U. S. Bureau of Mines in the fall of 1947 sent to this plant, for the production of synthetic fuels, equipment which the Germans had used in the war. With it were sent for test also German-made catalytic materials. The shipments include a 130-ton hydrogenation-process converter, a 60-ton "wickel ofen" heat exchanger, two 30-ton paste injectors and a Linde-Frankl oxygen-plant unit.

Prospects for an early development of an industry devoted to turning coal into oil are brightening. Secretary of Interior Krug in his February report to Congress declared that the estimated cost of producing gasoline from either coal or oil shale was 7½ to 9½c. per gallon. Gasoline is obtained from petroleum at a cost only a little lower.

At the University of Utah, a new coking briquet is being made of powdered Utah coal with pitch as a binder. This should aid in the problem of obtaining coke in Utah, most of the coal in that state not being suitable for making that product. In August, the Utah Chemical & Carbon Co. announced its intended construction of a $1,400,000 smokeless-fuel plant to process 400 tons of coal daily and to make plastics, varnish, chemicals, aspirin and nylon. Utah's coals are all very smoky bituminous fuels. Lignite, which usually makes no smoke is not available. So, Utah has always actively sought some way of creating a smokeless fuel.

NON-FERROUS METALS

By DONALD M. LIDDELL
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GENERAL

The feature of the American non-ferrous metal markets in 1947 was the belated passing of the OPA (Office of Price Administration) and the abolition of premium prices. The latter legally expired on July 1, but a bill was immediately introduced to continue them for two years (H.R. 1602), and was passed by the Senate in the closing days of July. On Aug. 8, President Truman vetoed the measure, giving as his reason that the premium price plan could not be regarded as a permanent part of our economy, and that it could be more readily abolished during a time of high employment and great business activity with less economic dislocation than it could later. The Joplin district showed the most striking effects, 30 properties being closed over night.

It is interesting at this time to look back on the two world wars and observe the contrast in metal prices and demands. By the end of 14 months after hostilities ended in the First World War, unmanageable stocks of the metals had begun to build up, and, to take a specific case, by 1921 the Copper Export Association had to borrow $40,000,000 with 400,000,000 lb. of copper as collateral, and the notes went below par at that, showing a lack of confidence in their backing. But again, taking the same metal as an example, the Government ended the Second World War with a stockpile of 543,000 tons, and at the end of August, 1947, 532,000 tons had been given to and absorbed by industry.

In general the situation in most of the non-ferrous metals is tight (and the same can also be said of the ferrous group), and if the Marshall plan is carried through, which means supplying the means to the Western European governments to bid against us in our own and foreign markets, there seems to be no reason to anticipate anything but high prices and short supplies for a long time to come.

ALUMINUM

The aluminum industry of the United States remains in the hands of the Aluminum Co. of America, with a potential capacity of over 425,000 tons, of which probably 325,000 tons are commercially economic; Reynolds Metal Co., probably 200,000 tons; and Kaiser-Frazier, probably 120,000 tons. Aluminium, Ltd., of Canada, probably has a potential capacity of 500,000 tons per annum, and is probably the cheapest producer in the world.

In spite of all the good publicity given the efforts to extract alumina from the low grade bauxites and other aluminous materials during the war, the sad fact remains that most of our aluminum output is derived from South American ore.

Unfortunately it appears true that the known world reserves of high grade bauxite bear a smaller ratio to the annual production of aluminum metal than do the reserves of any other of the large tonnage metals. It is an interesting fact that aluminum, though not so great in tonnage as others of the nonferrous metals, appears to be the second metal in yearly bulk, being outranked only by steel.

The U. S. price remained throughout the year at 15c. per lb. for 99 per cent metal in ingots; 14c. in pigs. The British home market price opened at £72.15s. per long ton, and was advanced to £80 on March 24, 1947, where it has remained steady.

United States and Canadian production in 1946 was 547,114 tons, down from a war peak (1943) of 1,284,530 tons. The production for 1947 was higher, probably 820,000 tons, with Canada supplying somewhat over 250,000 tons.

Reynolds Metal closed the Longview, Wash. plant, in May, for about a year, and also served notice on the War Assets Administration that it did not wish to operate the government built rod and bar mill near Newark, O.

The tariff on bauxite was reduced in 1947 from $1 to 50c. per ton, and on aluminum from 3c. to 2c. per lb.

COPPER

The world production of copper, excluding China, Cyprus, U.S.S.R. and Yugoslavia, was 1,720,402 tons in 1946 (compared with outputs exceeding this figure from North and South America alone during the war) and will probably be about 1,900,000 tons for 1947, in spite of the crippling effect of strikes in the United States, Chile, and Mexico.

Important potential mining and smelting capacity was developed during the year at the South African mines, and, in the United States, progress of the development of the San Manuel property of Magma Copper Co. and the announcement of a great program for the treatment of low grade ores of the Butte district by the Anaconda Copper Mining Co. are important from the viewpoint of the future. The old Tsumeb property of the Otavi Mining and Railway Co. in Southwest Africa, idle since 1939, will also add some new copper production in the near future. For a time, at least, this property will ship concentrates to Antwerp, where they will be smelted.

The year opened with American copper selling at 19.275c., f.o.b. Connecticut Valley points in the United States; at 11.55c. for Canadian copper f.o.b. Toronto or Montreal; and at £127 in London. This starvation policy for Canada was somewhat mitigated by the Canadian authorities in January 1947, when the price was raised to 16.625c. (still well below the United States level). On June 9, ceiling prices were removed in Canada so that copper immediately moved up to the world level.

In the first week of April the Ministry of Supply in Great Britain raised the British price to £137 per gross ton (equivalent to 24.62c. per lb.), contrasting with the 22½ to 23c. f.a.s. New York being quoted for foreign shipments and a price of 21½c. being quoted for domestic.

By mid-May the American export price was 23.675c., but by June 1 the export market was definitely back to 22¾c. and the domestic to 21.6c.

On March 12, the House of Representatives voted to suspend the duty on copper until March 31, 1949, the bill finally going to the President for signature April 21.

On July 14, the British cut the price of copper in London to £132 per ton (23.73c. per lb.), and it ended the year at that figure, with domestic prices down to 21.2c. and foreign export at 21.425c.

The dissipation of the 543,000-ton stock of copper held by the Government at the close of the war has already been commented on. In this world of suspicion it appears that national security demands a copper stockpile, unless we are going to forget every lesson of the last 30 years, so that here is a potential demand that should exercise a stabilizing influence on copper, even if European demand goes flat.

It is interesting to note that Kennecott Copper is the largest gold producer in the United States, 155,749 oz. in 1946.

LEAD

The abolition of premium-subsidy prices during 1947 has already been commented on, though lead has furnished its own subsidy by going to a new high price in cents per pound. The year began with lead at 12.35c. per lb., East St. Louis, which was advanced by small steps until, by March 6, when it was set at 14.8c. St. Louis, where it remained for the rest of the year. In Canada the price was raised in January from 5c. to 10.625c., and its ceiling price removed on June 9, the price immediately rising to 14 to 14¼c. In London, the year opened with foreign soft lead at £70 per gross ton (12.56c. per lb.), but at the end of March this was advanced to £90 per ton (16.15c. per lb.), where it has since remained.

What the production of lead was in 1946 is not too accurately known even now. Totally omitting any estimate for Japan, Korea, Manchuria, it was of the order of 1,050,000 tons, and, with the same omissions, it was about 1,380,000 for 1947.

In this connection there have been various statements published that St. Joseph Lead Co. is the largest producer of lead in the world. In the writer's opinion this idea is erroneous, and Consolidated Mining and Smelting Co. of Canada has that eminence, with St. Joseph second. However, if one regarded the Broken Hill (Australia) producers as a single entity, they would be second. Operations were resumed at Mt. Isa, Australia, during the year, and the O'Okiep interests are reopening the old Tsumeb property of the Otavi company in Southwest Africa, as already mentioned under "Copper." This was a German controlled company, and the property has ore of phenomenal richness (large tonnages showed over 50 per cent of usable metals, copper, zinc, and lead, as well as some minor valuable constituents). The property had been idle since 1939, and control was sold by the Alien Property Custodian of South Africa early this year. Metallurgical recoveries in the pilot plant far exceed anything attained during the old operations.

Important enough showings of lead have been found in the Uriwara district of Tanganyika to warrant an expenditure already reported at over £1,000,000. The Bawdwin mines in Burma are reported as less damaged than was at first thought, and it is believed they will shortly be running at the rate of 1,000 tons per month of lead and 70,000 oz. of silver.

Government stocks diminished from 37,000 tons on Jan. 1, 1947, to 4,653 tons on Nov. 30, 1947. The visible smelters' stocks were 176,328 tons on Dec. 31, 1946 to 24,809 tons on Nov. 30, 1947. Attention is again called to the fact that these decreases in stocks have taken place in the face of a great world production spurred by a record price. All of which reminds one that, over 20 years ago, J. R. Finlay gave a lecture on "Lead, the Coming Precious Metal."

The present tariff on lead is 1½c. per lb., but with lead at 15c. per lb. this does not look so mountainous as the tariff of 2c. did on 4 to 5c. lead.

TIN

Tin was in short supply all the year. The course of tin prices reflects this statement. The price of tin was 70c. per lb. New York on Jan. 1, 1947, and was advanced late on April 2, after the day's business was practically over, to 80c. per lb., and on Dec. 17 to 94c. per lb. This was a reflection of London, where tin was £380½ per gross ton on Jan. 1, advanced to £437 on March 29, and to £510 on Dec. 17, for 99 per cent metal, equivalent to 92c. for this grade and 94c. for Straits tin. On the last day of the year the U. S. Government agreed with the Bolivian tin producers on a price to them of 90c. per pound of contained metal in their concentrates. Production in 1946 was about 92,000 tons, of which about 37,600 tons came from Bolivia and 25,300 tons from Nigeria and Belgian Congo. Only about 18,200 tons came from the Far East, other great source of supply other than Bolivia before the Second World War and only 800 tons from Great Britain, the tin-land of the dawn of history, though England may have produced nearly 2,000 tons in 1947. Estimates of 1947 production are about 105,000 tons. The Arnhem (Netherlands) smeltery completed its rehabilitation program in January, and two great dredges were sent from the United States to the Far East early in the year, but in general it is known that the Far Eastern tin production on which the local smelteries and Arnhem depended has not come back as fast as was hoped when hostilities closed. A part of this seems to be due to a mining consideration concerning dredging areas that are approaching exhaustion. The question is whether the ground will pay for the installation of a dredge during the life of the property, even considering the later resale value of the dredge for operations elsewhere. A part seems possibly due to the governments concerned desiring to pay for war damage on the basis of the depreciated values of the equipment at the time of destruction, and a feeling by the operators that replacement before settlement will be prejudicial to the owners of the property, and into this comes a question in certain areas of tariffs on the replacement equipment taking the joy out of an apparently good settlement.

In addition, there have been grave

shortages of fuel, and it has been hard to get power plant equipment to replace that destroyed by the Japanese in their co-prosperity operations; local disorder is still rife in some areas, so that recovery in the Far Eastern tin industry has been disappointingly slow.

The general tin situation has been enlivened in the United States by direct charges by the *American Metal Market* that the Office of Materials Distribution "cooked" its figures to fit its forecasts, and that the statistics had become valueless. It can only be reported, therefore, that everyone concerned seems to agree that on Jan. 1, 1947, United States stocks were as follows: Pig tin held by private industry, 14,837 tons; pig tin, government, including the Treasury stock, 29,337; government stock of concentrates, 24,642; miscellaneous stock, private hands, 9,109; total 77,925 tons. The *American Metal Market* estimates a year-end stock of 38,000 tons of pig tin in government and private hands.

ZINC

The effect on zinc of the abolition of metal premium-subsidies in the Tri-State district has already been discussed. In spite of the dwindling visible stocks of spelter both in government and private hands, the price remained throughout the year at that established in November 1946 of 10½c. East St. Louis.

The Canadian zinc producers had been, like the copper smelters, starved by governmental decree, and the price in early January 1947 was only 5.15c., f.o.b. Toronto or Montreal. In January, this price was raised to 10¼c., and the ceiling removed on June 9, the price of electrolytic zinc rising to 11c. The price in London was raised Jan. 1, 1947 from £55 per gross ton to £70 (12.56c. per lb.) for Prime Western, where it still remains.

As a matter of fact, the London price of 12½c. looks far more realistic than does the 10½c. East St. Louis figure, for producers claim they have a waiting list for both Prime Western and Special High Grade. Visible stocks have dropped from 176,328 tons Dec. 31, 1946 to about 59,000 at the year-end. This does not include the Metals Reserve Corporation stocks, which amounted Oct. 31 to 225,721 tons (of which however 190,706 tons was in the form of ore). On Oct. 31, it was understood that 63,386 tons of a visible stock of 129,046 tons was earmarked for the Government. Presumably a part of the decline in stocks is owing to a movement of some of this metal into the government stock, a wise precaution, if it has been taken.

The government stockpiling operations furnished one of the jokes of the year, when the Treasury invited tenders of zinc for stockpiling "at prices substantially below the present market price for zinc." Strangely enough, the Treasury was not swamped with offers.

The tariff on zinc in ores and concentrates was reduced from 1.2c. per lb. to 0.75c. during the year, and on spelter from 1.4c. to 0.875c. per lb. Imports of zinc in ore and concentrates amounted to 272,000 tons in 1946.

The world's production of zinc for 1946 was 1,410,168 tons, omitting Czechoslovakia, Japan, Manchuria, Sweden, U.S.S.R. and Yugoslavia. The comparative figure for 1947 will be about 1,550,000 tons.

NICKEL

The two most important events of 1947 dealing with nickel from the standpoint of the United States were cut in the duty of 1¼c. per pound to be effective Jan. 1, 1948 and the closing of the Nicaro Nickel Company's plant in Cuba on Feb. 1. The nickel recovery plant became the property of the U. S. Government, but it is understood that the ore remains the property of the Nicaro Nickel Co.

Canadian nickel recovery greatly increased during 1947 over 1946 and is probably back almost to the 1945 production if it is not equal to it. It is estimated that the Canadian production will be close to 116,700 tons for the year and that the world production should be close to 123,600 tons, leaving out any attempt to include Finland and the U.S.S.R.

The price of nickel for cathodes was 35c. per pound and 36c. for shot and pig made from remelted electrolytic metal. In London the price was £190-195 per long ton. Both of these prices prevailed throughout the year.

ANTIMONY

The supply of antimony is still being seriously affected by the disturbed condition of China. The price was 25.78c., f.o.b. Laredo, Tex., Jan. 1, 1947, but was advanced to 33c. per lb. March 15, at which price it ended the year. In London the price on Jan. 1, 1947 was £157½ per gross ton, moving up during the year to £180.

A great use of antimony is as an antimony-lead alloy for storage battery plates, but it has also important uses as a constituent of type metal and other alloys, as a pigment, and in rubber manufacture. There is a smeltery at Laredo, working in the main on Mexican ores; the Bunker Hill & Sullivan Mining Co. (Idaho) produces some electrolytically, and the production by the lead smelters as antimonial lead has exceeded the two combined, although Bunker Hill & Sullivan reported that in the third quarter it was running at a rate of over 500 tons of metal per month. But in 1946 we imported 2,593 tons of antimony, probably 40 per cent of our requirements (this does not include the ore treated at Laredo in the imports). The Laredo smeltery was taken over by National Lead during the year.

THORIUM AND URANIUM

About the only points to be mentioned in a brief review, pertaining to radium and thorium, are that trade in minerals containing these metals is even more hedged about by government regulation than is trade in gold; that repeated hints come through of frenzied efforts by the Russians to increase the outputs of Saxony, Silesia, and Austria of uranium ores; and that work was started on the $10,000,000 Brookhaven pile.

PETROLEUM

By Robert E. Allen

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GENERAL

During 1947, petroleum continued to amaze those closest to it by an important and partly unexpected group of events and circumstances which taken together seem to indicate an acceleration in the tempo of the energy revolution that has come to the post-war United States. Demand for petroleum products during the 88th year of the industry amounted to 246,000,000 gallons daily for our 143,000,000 population. This is an increase of more that 10 per cent over 1946, nearly 10 per cent over the peak war demand, and 30 per cent over 1941, the last pre-war year, and means that we required an average of nearly seven quarts of liquid petroleum per person to provide for our comfort, our transportation, our industry, and our security.

For the first time, the economy of the United States required more than 2,100,000,000 barrels, or 90,000,000,000 gallons of oil a year, an astounding figure even in an age of superlatives. Among other things it means that we consume approximately 15 times as much oil per capita as Great Britain. This means 15 times as much efficient energy for us as for Great Britain. It means also that the 321,000,000 tons of oil and 109,000,000 tons of natural gas consumed by the United States weighed more than three times as much as the total 1947 U. S. crop of all food grains. In other words, we consume daily more than three times as much petroleum as food, because our average petroleum ration amounts to 16 pounds per capita daily. Although we are seldom as conscious of our demands for petroleum as we are of our demands for food, the closing weeks of 1947 brought a sharpened consciousness of the need for petroleum products as a combination of a transportation deficit plus the worst snow storm in 60 years resulted in a general need for reduced consumption of fuel oil for several weeks.

Although the petroleum stringency was confined to the 22 northeastern and midwestern states, its effect was felt by the entire country and by the entire petroleum industry. The steadily increasing demand for petroleum products resulting from the installation of about 750,000 new oil burners in homes and the delivery of 4,793,000 new automobiles and trucks, brought so much competition for supplies of petroleum that the 1946 trend toward higher prices became accentuated during 1947 in company with most commodity prices. Comparative prices on typical items are:

	Dec. 31, 1946	Dec. 31, 1947
36° East Texas Crude Oil, bbl.	$1.70	$2.65
#6 Fuel Oil—New York, bbl.	$1.92	$3.13
#2 Fuel Oil—New York, T. W. gal.	8.9¢	11.7¢
Kerosene New York T. W. gal.	10.3¢	13.6¢
Regular gasoline N. Y. T. W. gal.	10.6¢	13.3¢

Despite these price increases for petroleum products, they were still the cheapest essential commodity at the end of 1947, according to the U. S. Bureau of Labor Statistics. Wholesale prices of petroleum products as of that date had barely regained their base index of 100 in comparison with indices of 130-160 for most everyday necessities. The transition from one year to the next marks no significant change in the demand of the American public for new cars and trucks, new oilfired heaters, and many other oil consuming devices such as farm tractors, diesel locomotives, airplanes and even gasoline propelled wheelbarrows.

PETROLEUM TRENDS

In an industry as huge as petroleum, trends of great magnitude are sometimes almost indiscernible in the space of only a year. Significant events must be frequently scanned in lieu of definite trends. Many were the significant petroleum events of 1947. Only a few of the more notable can be listed here.

1. The establishment of new records in the production, transportation, processing, and distribution of petroleum.
2. A demand for all kinds of petroleum products that broke all previous records and showed no sign of abating.
3. The voluntary allocation of petroleum products to dealers in certain areas where transportation handicaps resulted in local shortages of various durations.
4. A ruling by the U. S. Supreme Court that the Federal Government, rather than the state, held proprietary rights on the submerged ocean-floor beyond low tide on the California coast.
5. A record importation of petroleum from Venezuela and the receipt of four cargoes of Arabian crude oil, resulting in net imports for several months.
6. The adoption of statutes promoting the unitization of oil pools in Oklahoma and the unitization of the important West Edmond field under that law.
7. The accelerating competition among buyers for crude oil and all petroleum products, resulting in a trend toward higher prices.
8. Intensive joint research by large oil and coal companies designed to provide more flexible markets and greater utility for coal and to make available supplies of synthetic petroleum.
9. An increasing cognizance of the importance of the vast oil fields of

South America and the Middle East to the American consumer of petroleum products.

10. A construction program to provide new facilities for the production of petroleum products, costing $2,000,000,000 a year and requiring much borrowed capital despite the earnings of the industry which are insufficient to meet present costs.

PETROLEUM EXPLORATION

As is always the case when prices are high enough to provide the incentive to undertake the risks of exploration, the search for oil reached new heights during 1947. At the end of the year, there were 480 geophysical and core drilling crews actively operating in 16 of the 26 oil producing states and in North Dakota.

Despite all the exploratory activity, there were no additions to the number of oil producing states during the year, and Alabama remains as the latest entrant to the group. Recent drilling in Georgia, North Carolina, Maryland, Delaware, and Washington has been unsuccessful to date although a small flow of natural gas was found by a well in Garrett County in western Maryland.

A phenomenal number of new oil and gas pools were found during the year. Something like 5,400 exploratory wells were drilled, resulting in the discovery of 1,100 new fields, zones, and extensions, and 4,300 dry holes. Although it may be three or four years before the reserves of these new discoveries are fully evaluated, it may be expected that some of them are of significant magnitude and will contribute substantially to oil reserves. Advance estimates indicate that the largest of 1947 discoveries may be a field 12 miles off the coast of Louisiana in the Gulf of Mexico. If this field contains the estimated 500,000,000 barrels, it will yield in perhaps 20 years just about enough oil to supply the United States for three months at present rates of consumption.

Ten million-barrel oilpools are now considered quite a reward for the wildcatter. Such a pool would supply enough oil to last the country for two days, but the process of recovery would require years. Since the original petroleum reserves of the United States have now been depleted by the extraction of the 35,000,000,000 barrels produced to date, it seems obvious that, until other sources of energy are available, we will become increasingly dependent on foreign supplies of crude oil. This crude oil must come from countries whose reserves are large enough to augment our own. The most likely sources of petroleum imports, which may soon reach 1,000,000 barrels daily, are Venezuela and Arabia. It seems virtually certain that the imports of 1947 will be far eclipsed by those of 1948.

The completion of several new refineries in Europe will increase the consumption of oil from the Middle East and should make that much more Venezuelan oil available for our use. In Canada, an intensive search for more oil is in progress with fair success. If Canada becomes self sufficient in oil, we will be able to make good use of the large quantities of oil we now export to our neighbor nation.

PETROLEUM PRODUCTION

According to preliminary reports, the production of crude oil in the United States amounted to 1,856,550,000 barrels in 1947, equal to 5,090,000 barrels or 213,800,000 gallons daily. The production of natural gasolines and distillates amounted to 131,150,000 barrels total, or 360,200 barrels or 15,130,000 gallons daily. The production of natural gas amounted to a total of 6,100,000,000,000 cubic feet. This quantity of gas is equivalent to 1,000,000,000 barrels of crude oil, or an average of 2,738,000 barrels or 115,000,000 gallons daily. Thus the total petroleum production of the U. S. in 1947 amounted to the equivalent of 2,987,700,000 barrels of oil, an average of 8,186,000 barrels or 344,000,000 gallons daily. This tremendous quantity was enough to supply every per-

TABLE I

WORLD PRODUCTION OF CRUDE OIL

Year	United States (Thousands of Barrels)	Per Cent	Rest of World (Thousands of Barrels)	Per Cent	Total World (Thousands of Barrels)
1937	1,279,160	63	760,071	37	2,039,231
1938	1,214,355	61	773,686	39	1,988,041
1939	1,264,962	61	821,198	39	2,085,609[2]
1940	1,353,214	63	790,836	37	2,144,050
1941	1,402,228	63	820,713[2]	37	2,222,941[2]
1942	1,386,645	67	693,221[2]	33	2,079,866[2]
1943	1,505,613	67	725,810[2]	33	2,231,423[2]
1944	1,677,904	64	936,441[2]	36	2,614,345[2]
1945[3]	1,713,655	61	913,826[2]	39	2,627,481
1946[3]	1,733,424	60	1,064,848[1]	40	2,798,272
1947[3]	1,856,550		1,149,450[1]		3,006,000

[1] Approximate production.
[2] Revised.
[3] Preliminary, subject to revision.

son in the country with the equivalent of 2.4 gallons or 17.5 pounds daily.

The crude oil and natural gasolines, etc. above listed, plus benzol from gas works and coke plants, plus net imports, comprised the total liquid petroleum supply of the United States for 1947. This amounted to 2,141,000,000 barrels, an average of 5,867,000 barrels or 246,200,000 gallons daily. This brings the total supply of all petroleum in the United States up to the equivalent of 8,600,000 barrels or 361,400,000 gallons daily, which amounted to 2.53 gallons or 18.5 pounds per person daily. This figure clearly shows the importance of petroleum in the economy of the United States.

To produce this record quantity of petroleum, required approximately 430,000 oil and gas wells. Of these, approximately 300,000 were in the category known as stripper wells of such small production that their total production for the year amounted to only about 250,000,000 barrels or about one-seventh of our total production. This is an important seventh, however, for without it we would have had to import 250,000,000 barrels more oil without enough tankers.

Old oil and gas wells are abandoned at the rate of about 10,000 yearly in the United States. The number of unproductive new wells drilled each year totals about 11,000. It is evident, therefore, that at least 21,000 wells must be drilled yearly simply to maintain the number of wells. This in itself is an enormous undertaking, costing about $750,000,000 yearly and requiring over 1,250,000 tons of steel. However, even this number of wells will not maintain the oil production of the country, much less supply the constantly increasing demand. With only maintenance wells drilled, the average daily production of the United States would decline about 300,000 barrels. This would be a successive decline yearly. Enough new wells must be drilled to produce 110,000,000 barrels of oil each year, that is, 300,000 barrels per day, if production is to be maintained. Finally, if demand increases by 10 per cent during a year, enough additional wells must be drilled to yield the additional 200,000,000 barrels of oil required and at the same time discover enough new oil to replace all of the oil produced during that year. Thus the task of the petroleum industry is a formidable one. Providing stupendous and ever increasing quantities of petroleum for today and many tomorrows is without question a job of the first magnitude, not only for the petroleum industry but for the United States. There are grave and unmistakeable implications in the fact that,

TABLE II

UNITED STATES PETROLEUM PRODUCTION

	Crude Oil (Thousands of Barrels)	Natural Gasoline, Etc. (Thousands of Barrels)[1]	Total Petroleum (Thousands of Barrels)	Natural Gas (Millions of cu. ft.)
1937	1,279,160	49,177	1,328,337	2,939,410[2]
1938	1,214,355	51,347	1,265,702	3,061,200[2]
1939	1,264,962	51,650	1,316,612	3,333,500
1940	1,353,214	55,700	1,408,914	3,694,100
1941	1,402,228	80,855	1,483,083	4,103,500
1942	1,386,645	83,322	1,469,967	4,453,900
1943	1,505,613	87,716	1,593,329	5,160,560[2]
1944	1,677,904	100,046	1,777,950	5,614,120[2]
1945[2]	1,713,655	112,004	1,825,659	5,902,180
1946[3]	1,733,424	115,153	1,848,577	6,100,000
1947[3]	1,856,550	131,125	1,987,675	6,600,000
11 Year Total	16,387,710	918,095	17,305,805	50,962,470
Total Prior	18,694,727	579,833	19,274,560	42,101,295
1859–1947 Total	35,082,437	1,497,928	36,580,365	93,063,765

[1] Natural gasoline, etc. includes related products such as liquefied petroleum gases, naphthas and other liquid hydrocarbons, recovered from natural gas.

[2] Revised.

[3] Preliminary, subject to revision.

with only six per cent of the world's population and only 30 per cent of the known reserves, we are producing and consuming two-thirds of the world's petroleum production. It is little wonder that our oil companies are intensifying their discovery and development of foreign fields as our own reserves wane.

To maintain the supply of petroleum during 1947, more than 33,600 wells were drilled. This required the operation of more than 2,000 rotary drilling rigs and an undetermined number of standard tool rigs. More than 50,000 men were directly employed in drilling operations alone. These wells required no less than 2,500,000 tons of steel pipe, plates, sheets, and structures, and cost no less than $1,200,000,000. This is only part of the cost of keeping the United States in oil. To move and process the crude oil and deliver it to the consumer requires ever-widening costs in terms of steel and capital. Many of the costs of refinery construction are now thrice as great as pre-war, and steel is in such scarce supply that many wells, pipelines, and refinery jobs have been held up for lack of steel.

With the limited steel available, many notable achievements were made in the drilling and producing fields. A new depth record of 17,823 feet was set by an expensive but unproductive test well in Caddo County, Oklahoma, and as the year ended a well in Ventura County, California was within a few hundred feet of this record and still drilling. Among the notable new fields discovered during the year, in addition to the one off the Louisiana coast, was one in west Texas and one in California, both below 12,000 feet in depth, that give promise of very substantial additions to the nation's petroleum reserves.

Despite a year of good production and good prices, the petroleum producers of the United States are becoming keenly aware that their oilfields can not produce 2,000,000,000 barrels a year indefinitely and that the discovery of a good field means just one less field left to find. Hence the interest in foreign oil.

PETROLEUM TRANSPORTATION

The key to the petroleum story of 1947 was transportation, or rather the lack of it. Though more oil was available at points of consumption than ever before, there was still insufficient gasoline and fuel oil to satisfy all

TABLE III

QUARTER-CENTURY OF PETROLEUM PROGRESS

	1922	1947[1]	Per Cent Increase
Oil Producing States	19	26	36.8
Deepest Well	7,579 ft.	17,823	135.2
Producing Oil Wells	284,880	435,000	52.7
Producing Gas Wells	45,100	66,700	46.0
Crude Oil Production (barrels)	557,531,000	1,856,550,000	233.0
Natural Gasoline Production (barrels)	12,044,000	131,150,000	989.0
Total Liquid Petroleum (barrels)	571,263,000	1,987,700,000	248.0
Natural Gas Production (mcf) (from oil and gas wells)	1,143,819,000	6,600,000,000	477.0
Known Liquid Petroleum Reserves (barrels)	7,800,000,000	24,500,000,000	214.2
Oil Reserve/Production Ratio	14.00	12.33	
Known Natural Gas Reserves (mcf) (Natural Gas Fields only)	11,500,000,000	160,575,901,000	1,296.3
Gas Reserve/Production Ratio	8.14	26.36	
Motor Fuel Produced (barrels)	147,672,000	834,900,000	465.4
Average Price of Crude Oil (per bbl.)	$1.605	$2.65	
Average Price of Gasoline (ex tax) (per gal.)	$.2482	$.1693	

[1] 1947 Data preliminary, subject to revision.

demands during the summer and winter of 1947. This condition prevailed only through the Middle West with respect to gasoline and only in the Middle West and northeastern states with respect to fuel oil. Though the tremendous surge in demand was the basic cause of the situation and though in terms of past demand there was ample supply, it can not be denied that to a consumer there is a shortage when he can not buy all the petroleum products that he wants and is able to pay for.

Within a radius of 200 miles of New York and Chicago lie the most

TABLE IV

SUPPLY AND DEMAND OF ALL OILS

(Thousands of barrels)

	Production[1]	Imports	Exports	Closing Stocks	Domestic Demand
1937	1,331,127	57,157	173,311	564,997	1,169,205
1938	1,267,466	54,308	194,145	555,921 567,703[2]	1,136,705
1939	1,319,110	59,060	189,559	525,838	1,230,486
1940	1,412,081	83,751	130,466	564,584 563,277[2]	1,326,620
1941	1,486,518	97,142	108,830	552,328 556,425[2]	1,485,779
1942	1,472,364	35,966	116,907	497,940	1,449,908
1943	1,595,729	63,412	149,957	485,698 483,307[2]	1,521,426
1944	1,780,350	92,311[3]	207,616	477,089	1,671,263
1945[3]	1,828,539	113,619	182,983	463,579	1,772,685
1946[3]	1,850,647	135,033[3]	151,204	507,094	1,790,961[3]
1947[4]	1,987,700	157,700	167,500	507,000	1,977,900

[1] Includes production of all raw materials, that is, crude petroleum, natural gasoline, liquefied petroleum gases and benzol.

[2] New basis for comparison with succeeding year.

[3] Revised.

[4] Preliminary, subject to revision.

concentrated centers of petroleum consumption in the world. More than half of the petroleum of the country is consumed in these two areas. Only the Chicago area has petroleum production of any consequence, and it declined so much during the war that it will not begin to meet the current needs of the district. Consequently, the refineries serving the great agricultural and industrial Middle West have had to go farther for their crude oil—clear to the mountain basins of Wyoming and to the high plains of western Texas. To move huge quantities of oil economically overland, large pipelines are required, and pipelines take money, steel, and time to build. During the war, pipelines were built principally to meet military requirements, an example being the two Big-Inch pipelines which carried Texas oil to the great refineries of New Jersey that were vital to the prosecution of the war in the European theater of operations. These big pipelines were built to supplant the regular tanker routes between Texas and the East Coast that were so vulnerable to submarine attack during the war.

TABLE V

WELLS COMPLETED IN THE UNITED STATES

Year	Oil	Gas	Dry	Service	Total
1937	22,386	2,676	6,560	1,453	33,075
1938	18,598	2,066	6,141	688	27,493
1939	17,625	2,198	6,474	1,420	27,717
1940	19,125	2,352	6,617	1,947	30,041
1941	19,552	3,007	7,128	2,366	32,053
1942	10,492	2,068	5,504	1,760	19,824
1943	9,717	1,782	6,385	1,547	19,431
1944	13,028	3,067	7,009	2,156	25,260
1945	14,297	2,898	7,471	2,209	26,875
1946[1]	15,665	2,935	7,891	2,172	28,663
1947[2]	18,425	3,400	9,925	2,350	34,100

[1] Revised.
[2] Preliminary, subject to revision.

Submarines did not menace the many shorter pipelines that carried crude oil from the fields of Illinois, Indiana, Kansas, and Oklahoma to the refineries of the area. The rapid depletion of the oilfields of Illinois was the even greater menace which forced the refineries to go farther and farther south, west, and southwest for their supplies of crude oil and to bid for oil in competition with Gulf Coast refineries that were just as anxious to refine inland crude oil and send the products by tanker to the big cities of the Atlantic seaboard.

Although pipelines of the necessary magnitude had been projected, they were being built very slowly because of steel shortage due to the pent-up demands of U. S. industry. Consequently, when the gasoline demand began to pyramid during the plowing and planting season of 1947, it soon became apparent that there was not enough pipeline capactiy to let midwestern refineries operate at the rate required to yield all the gasoline wanted by consumers of that area. As a result, a simple and practical method of allocating limited supplies to dealers was inaugurated by suppliers serving the area, with the result that service stations were able to close earlier each day and to close on Sunday. A voluntary but practical type of rationing by retailers to consumers was the result of this allocation plan. As the year wore on, the transportation stringency, coupled with still increasing demand, resulted in a continuing deficiency of fuel oil as well

TABLE VI

CRUDE OIL IN STORAGE AT YEAR END[1]

(in barrels of 42 gallons)

Year	
1937	306,826,000
	305,833,000[2]
1938	274,958,000
	274,165,000[2]
1939	239,978,000
1940	264,709,000
1941	247,499,000
1942	234,889,000
1943	243,506,000
	242,132,000[2]
1944	220,862,000
	220,663,000[2]
1945	218,763,000
1946[3]	224,473,000
1947[4]	222,500,000

[1] Excludes heavy grades in California.
[2] New basis to compare with succeeding year.
[3] Revised.
[4] Preliminary, subject to revision.

TABLE VII

CRUDE OIL PRICES

(per barrel of 36 deg., API gravity Oklahoma–Kansas Oil)

Year	High	Low
1937	$1.22	$1.10
1938	1.22	1.02
1939	1.02	1.02
1940	1.02	1.02
1941	1.17	1.02
1942	1.17	1.17
1943	1.17	1.17
1944	1.17	1.17
1945	1.17[1]	1.17
1946	1.62	1.17[1]
1947	2.57	1.62

[1] Exclusive of Differential and variable subsidy payments effective 1945.

as gasoline, and this situation will continue as long into 1948 as product demand exceeds transportation capacity.

Because tanker transportation is more flexible and fully as economical as pipeline transportation, the Big Inch lines were shut down soon after the war, and tanker service from the Gulf Coast to the Atlantic seaboard were resumed. During 1947, the two big pipelines of 24 and 18 inches diameter were sold by the Federal Government to the Texas Eastern Pipeline Co. which promptly began to install the necessary compressor plants to enable the line to carry the maximum quantity of natural gas from Texas to the industrial east. The line delivered low pressure gas to Ohio and Pennsylvania during several months of 1947. Since only about 6,000 cubic feet of natural gas is needed to equal the heating value of a barrel of fuel oil, it is evident that one way to avoid future fuel shortages is to bring natural gas to New York and New England so that consumers would have their choice of petroleum fuels. Huge pipelines to bring Texas gas to New England are now projected.

For more than half of 1947, tanker transportation brought adequate supplies of Gulf Coast and Caribbean oil to the northern Atlantic states. The magnitude of this tanker movement of oil is indicated by the third quarter operations when 142,028,049 barrels of petroleum were transported from Texas and Louisiana alone to the Atlantic states. This was about 30

TABLE VIII

CAPACITY OF U. S. REFINERIES

(Operating—shut-down and building as of Dec. 31)

Year	Capacity[1]
1937	4,373,701
1938	4,650,805
1939	4,721,213
1940	4,860,194
1941[2]	4,999,999
1942	5,035,000
1943	5,150,000
1944	5,330,000
1945	5,288,045
1946	5,566,482
1947	5,675,700

[1] In barrels of crude oi. per day.
[2] Revised.

TABLE IX

REFINERY RUNS OF CRUDE OIL

(in barrels of 42 gallons)

Year	
1937	1,183,440,000
1938	1,165,015,000
1939	1,237,840,000
1940	1,294,162,000
1941	1,409,192,000
1942	1,334,103,000
1943	1,429,738,000
1944	1,665,684,000
1945	1,719,534,000
1946[1]	1,730,197,000
1947[2]	1,850,700,000

[1] Revised.
[2] Preliminary, subject to revision.

TABLE X

MOTOR FUEL PRODUCED IN UNITED STATES

(in barrels of 42 gallons)

Year	
1936	516,266,000
1937	571,727,000
1938	569,162,000
1939	611,043,000
1940	616,695,000
1941	701,294,000
1942	608,900,000
1943	608,180,000
1944[1]	739,340,000
1945[1]	798,194,000
1946[1]	776,054,000
1947[2]	834,900,000

[1] Revised.
[2] Preliminary, subject to revision.

TABLE XI

GAS AND FUEL OIL PRODUCED IN U. S. REFINERIES

(in barrels of 42 gallons)

Year	Gas, Oil and Distillates	Residual Fuel Oil	Total Fuel Oil
1937	146,706,000	312,064,000	458,770,000
1938	151,774,000	294,890,000	446,664,000
1939	161,746,000	305,944,000	467,690,000
1940	183,304,000	316,221,000	499,525,000
1941	189,177,000	342,367,000	531,544,000
1942	196,714,000	358,901,000	555,615,000
1943	211,516,000	417,306,000	628,822,000
1944	239,152,000	461,455,000	700,607,000
1945	249,224,000	469,492,000	718,716,000
1946[1]	287,896,000	431,364,000	719,260,000
1947[2]	310,250,000	447,150,000	757,400,000

[1] Revised.

[2] Preliminary, subject to revision.

per cent of U. S. total production and averaged 1,544.000 barrels daily. Then the number of tankers available for charter diminished as the U. S. Maritime Commission prepared to offer U. S.-owned tankers for sale, and in the course of a few weeks in late 1947 petroleum supplies were shortened nearly 12.000.000 barrels with resulting dislocations and shortages in fuel oil supply. The record 25.8 inch snowfall of Dec. 26 aggravated the situation, but as the year ended sufficient additional tanker capactiy was becoming available to mean a more nearly balanced supply before spring.

PETROLEUM REFINING

Every gallon of petroleum products used in 1947 had to pass through a refinery or processing plant. In passing through the "magic towers" of a modern refinery, crude oil is still converted into three principal products and an increasing number of secondary products. In refining vernacular, the top of the barrel yields the gasoline for automobiles, trucks, tractors, and airplanes; the middle of the barrel yields kerosene, diesel oil, gas oil, and distillate fuels for home heating; the bottom of the barrel yields the heavy fuel oils and the asphalts. Each part of the barrel yields many other products besides those listed. but all save a small percentage of refinery revenue comes from the sale of the products mentioned.

Continuing the trend of previous years, 1947 witnessed a surge in demand for each of these principal products but particularly for the products from the middle of the barrel which are used chiefly to heat homes, fuel trains and ships, and make the better grades of gasoline. Faced with this demand for more middle of the barrel products, many refiners had to make inroads into both the top and bottom of the barrel, but the bottom of the barrel felt the effect worst. The result was relatively less heavy fuel oil for industry, large buildings, public utilities, and ships, and the inevitable rise in price that accompanies competitive bidding for a scarce commodity. Another result was that many large users of fuel, including some oil refineries, converted their operations back to coal as being the cheaper and more available of the two fuels. As the demand pressure grows for the products from the top and middle of the barrel that have no alternates available in quantity, it seems likely that heavy fuel oil will either increase in price to a figure comparable with home heating oil and gasoline or shrink still more in volume as refiners seek to move more and more of it up into the middle of the barrel.

TABLE XII

INDEX OF WHOLESALE PRICES

(1926 = 100)
(U. S. Bureau of Labor Statistics)

Year	Crude Petroleum and Petroleum Products	All Commodities
1936	57.3	80.8
1937	60.5	86.3
1938	55.9	78.6
1939	52.2	77.1
1940	50.0	78.6
1941	57.0	87.3
1942	59.8	98.8
1943	62.5	103.1
1944	63.9	104.0
1945	63.5	105.8
1946[1]	67.3	120.9
1947 (Oct.)	96.5	158.5

[1] Revised.

The 363 operating refineries of the United States are so located with respect to supplies of crude oil and available markets that it is very seldom that they closely approach their total rated capacity. Yet such has been the unremitting demand for petroleum products that for months during the latter half of 1947 the record of refinery runs was broken time after time until the last week of the year when the operating refineries processed 39,460,000 barrels of crude oil at the rate of 5,637,000 barrels daily, as compared with crude oil production of 5,291,000 barrels daily during the week. This record represented 99 per cent of the total capactiy of operating refineries and was achieved by the refineries in five of the ten U. S. refinery districts operating at rates well beyond their capacity for weeks at a time. During this last week of the year, for example, the refineries of the East Coast processed 6,391,000 barrels of crude oil while operating at 111.5 per cent of capacity.

Needless to say, refineries like all other intricate mechanisms occasionally need replacements and repairs and occasionally also there is a strike or a lack of tankers that shuts down or cripples refinery operations. It is easy to see what the immediate effect would be if the shutdowns of three or four of our largest producing refineries happened to coincide at a time when stocks were low and current demand was well ahead of refinery runs. This is a danger to which the refiners are more alive than anyone else, and they are striving desperately with every means at hand to increase their ca-

TABLE XIII

ANNUAL COST OF MOTOR FUEL AND TAXES PER VEHICLE

(Based on average number of motor vehicles in use each year)

Year	Annual Consumption Per Vehicle (gal.)	Average Motor Fuel Cost	Average Motor Fuel Tax	Total Cost to Consumer
1927	527	$ 96.49	$14.81	$111.30
1929	593	106.27	20.75	127.02
1931	623	80.99	24.92	105.91
1933	618	76.69	33.43	110.12
1935	668	90.51	35.34	125.85
1937	705	102.86	38.07	140.93
1939	721	95.97	39.22	135.19
1940	733	93.46	41.49	134.95
1941	755	100.42	44.77	145.19
1942	625	90.38	37.31	127.69
1943	540	78.62	32.24	110.86
1944	559	81.72	33.37	115.09
1945	641	92.82	38.59	131.41
1946	800	117.52	48.64	166.16
1947[1]	813	137.64	50.24	187.88

[1] Preliminary, subject to revision.

pacity against the greater demands of 1948.

Included in the refinery expansion program are three plants for converting gaseous petroleum to liquid petroleum. A wide range of petro chemicals will be obtained from these plants, and their operation will open a new phase of the history of petroleum as will also the first and not far distant plant that will convert coal to synthetic liquid petroleums.

TABLE XIV

MOTOR FUEL PRICES, TAXES, AND COSTS

Year	Average Retail Price	Local, State and Federal Taxes	Average Total Cost Per Gallon to Consumer
1920	$.2974	$.0009	$.2983
1925	.2009	.0211	.2220
1929	.1792	.0350	.2142
1933	.1241	.0541	.1782
1936	.1410	.0536	.1945
1937	.1458	.0540	.1998
1938	.1407	.0544	.1951
1939	.1331	.0544	.1875
1940	.1275	.0566	.1841
1941	.1330	.0593	.1923
1942	.1446	.0597	.2043
1943	.1456	.0597	.2053
1944	.1462	.0597	.2059
1945	.1448	.0602	.2050
1946	.1469	.0608	.2077
1947	.1693	.0618	.2311

PETROLEUM DISTRIBUTION

The business of transmitting petroleum products to millions of consumers throughout the United States is one of the greatest distribution patterns known. While only one company now markets its products in every state, there are at least a dozen companies that operate in 15 or more states. In addition, there are hundreds of companies that compete for business in more localized marketing areas. This competition of the most part is for the business of the thousands of individual dealers who sell petroleum products to the public. A relatively small proportion of the total is sold direct to consumer by the refiner, and most of our service stations and fuel oil outlets are individually owned small businesses.

TABLE XV

PETROLEUM TAXES

Year	Total Taxes
1936	$1,183,147,498
1937	1,315,487,798
1938	1,286,114,473
1939	1,354,166,333
1940	1,523,693,000
1941	1,807,146,000
1942	1,786,338,797
1943	1,686,133,000
1944[1]	1,811,658,000
1945	1,902,037,000
1946[2]	2,200,000,000
1947[2]	2,500,000,000

[1] Revised.
[2] Preliminary, subject to revision.

The petroleum distribution facilities of the country suffered severely from the effects of the war and like other divisions of the industry that division is beset by shortages of material and high prices. Despite these difficulties, great strides were made in 1947 toward a return to the pre-war standards of service. Increased taxes, rents, and operating costs in the marketing of petroleum products in common with most retailing enterprises made necessary increased margins between the cost and retail price of many products, with the result that still another item of increased cost had to be passed on to the consumers, who on the whole, had more money with which to buy.

Coincident with the marked increase in farm incomes came a great demand from the farmers for petroleum consuming devices to increase their productivity and improve their comforts. This remarkable expansion of the farm market for petroleum is one of the most notable characteristics of the agricultural revolution through which the nation is passing. Farmers are now estimated to be the consumers of 24 per cent of petroleum products and are rapidly becoming a big factor in the consumption of home heating oil as well as gasoline.

Prominent agricultural authorities state without qualification that this country could not now feed itself without a mechanized agriculture. The delivery of increasing quantities of petroleum products to the farms of the nation is posing new problems of distribution and service. Besides gasoline for the tractor and fuel for the home, the petroleum industry is now supplying much of the ammonia fertilizer as well as many insecticides, fungicides, and herbicides needed in the business of farming. Since the production of food is always near the top of any priority list, it may be assumed that the farm trade will continue to be a big item of the business of distributing petroleum products.

PERIODICAL PUBLICATIONS

American Gas Journal
53 Park Place, New York City.
American Mineralogist
450 Ahnaip St., Menasha, Wis.
Chemical and Metallurgical Engineering
330 West 42nd Street, New York City.
Coal Age
330 West 42nd Street, New York City.
Engineering and Mining Journal
330 West 42nd Street, New York City.
Fueloil Journal
232 Madison Ave., New York City.
Iron Age
100 East 42nd Street, New York City.
Metal Finishing
11 W. 42nd St., New York City.
Metal Progress
7301 Euclid Ave., Cleveland, O.
Metals and Alloys
330 West 42nd Street, New York City.
Mining and Metallurgy
29 West 39th Street, New York City.
National Petroleum News
1213 West Third Street, Cleveland, O.
Oil and Gas Journal
211 South Cheyenne Street, Tulsa, Okla.
Oil Weekly
3301 Buffalo Drive, Houston, Tex.
Petroleum Engineer
701 Allen Building, Dallas, Tex.
Petroleum World
412 West Sixth St., Los Angeles, Calif.
Steel
Penton Publishing Co., Cleveland, O.
Steel
16 E. 43rd Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF PETROLEUM GEOLOGISTS, Box 979, Tulsa, Okla.
AMERICAN GAS ASSN., 420 Lexington Ave., New York City.
AMERICAN INSTITUTE OF MINING & METALLURGICAL ENGINEERS, 29 W. 39th St., New York City.
AMERICAN IRON AND STEEL INSTITUTE, 350 Fifth Ave., New York City.
AMERICAN MINING CONGRESS, 841 Munsey Bldg., Washington, D. C.
AMERICAN PETROLEUM INDUSTRIES COMMITTEE, 50 W. 50th St., New York City.
AMERICAN PETROLEUM INSTITUTE, 50 West 50th St., New York City.
AMERICAN ZINC INSTITUTE, 60 E. 42nd St., New York City.

DIVISION XIII

MANUFACTURES AND TRANSPORTATION

CONDITIONS IN MANUFACTURING

By L. Seth Schnitman
Consulting Economist

GENERAL

Rarely, if ever in recent years, have so many professional observers of the industrial drama that is America been so chastened by the passing scenes as they were in 1947. Begun in a general setting of predictions of retrenchment, the year closed, as if in defiance, with a blaze of awesome performance records that for years to come may serve to remind us how great are the potentials of the American productive plant and how much more we are capable of producing if only as a people we could learn to solve the production-distribution riddle that still plagued us two full years after war's end.

Large as production was in 1947, it still was short of meeting all demands. As a result, prices continued their upward spiral, and as the year came to an end they threatened not only to get out of hand but worse, also to undermine our entire economic structure. Nor was the problem for us made any the easier by the economic and financial stringencies that had already gripped many other nations of the world, notably England and France.

Time is still on our side but unless we contrive to break the bottlenecks which have brought us to the very brink of a devastating inflation we shall learn the much harder lesson that it takes much more than new highs in production or in employment to produce an enduring basis for a sound economy.

Though a year of triumphs, 1947 was at the same time a year of signal failures. Never before in peacetime were so many goods produced. Yet, never before were we seemingly unable or unwilling to add to plant capacities sufficiently to break the logjams and thus to reduce the groundswell of inflationary forces.

INDEX OF INDUSTRIAL PRODUCTION

Reversing a three-year trend, the combined index of industrial production of the Board of Governors of the Federal Reserve System recorded an advance in 1947 as compared with the previous year's index of the output of factories and mines. At 187, the 1947 index was 10 per cent higher than that for 1946 and 87 per cent above the average for the base period, 1935-1939. During the year of peak physical industrial production (1943), the index was 239 or 139 per cent above the average for the five-year base period, while, in 1941, the last pre-war peacetime year, the index of industrial production was 162, or only 62 per cent above the average of the base period. Thus, it is seen that the 1947 level of production was more than 15 per cent above the volume reported for 1941 when the nation was already a long way on the road to production for national defense and for a war that was forced upon it by the treachery at Pearl Harbor. Still further contrasts are of interest: (1) in 1929, the year that stood as the high-water mark for industrial production until it was exceeded in 1937 the index was only 110 or 10 per cent better than the five-year average; (2) at the nadir of the last great depression (1932), the index stood at 58 or 42 per cent below the average for the period, 1935-1939. Thus, the 1947 index was 70 per cent higher than that for 1929 and almost 225 per cent above the level for 1932.

For manufacturing alone, as distinct from mining, the 1947 production index was 193 or 93 per cent above the level of the base period and contrasts with an index of 177 for 1946; the gain in manufacturing between 1946 and 1947 thus amounted to about 9 per cent. Nonetheless, 1947 showed a volume 25 per cent lower than the reading during the peak year 1943.

For mining, the 1947 index of production, in recording a reading of about 149, established a new high record. The 1947 index was about 11 per cent higher than that for 1946 and exceeded the figure of 1944, the previous record year, by some 6 per cent.

DURABLE MANUFACTURES

Factories producing durable manufactures in the aggregate turned out almost 15 per cent more goods in 1947 than in 1946. Notwithstanding this gain in output, the 1947 index of durable goods production, computed at 220 (1935-1939=100), was almost 40 per cent lower than the index for the peak year of durable goods output (1943). It should be remembered, of course, that in that year many of our factories were at work "around the clock." Had such been the case in 1947, it is not too presumptuous to suggest that most if not all of the bottlenecks encountered in the durable goods industries would have been broken and that one of the principal props of inflation, the excess of demand over supply, would have disappeared. Further pointing up this not too bold presumption is the fact that the 1947 index of durable goods output was not only almost 25 per cent lower than that for 1945, the year when victory was achieved on the battlefields, but also some 27 per cent below the reading for 1942, the first year of actual warfare. Still other comparisons are of moment.

Though more than five times the volume of the depression year (1932), durable goods output in 1947 was only a scant 10 per cent greater than in 1941, when it was still far from certain that as a nation we would be called upon to defend our very existence. Of the elapsed eight years of the 1940s, only three, viz., 1940, 1941, and 1946 recorded lower production indexes for durable goods than was shown for 1947. Simply stated, this can only mean that, however to be achieved, industry must produce even more durable goods if as a people we are to be spared from the enervating effects of inflation. Else industry will be swallowed up by it in the maw of another depression.

NON-DURABLE GOODS

Non-durable goods, too, were produced in larger volume in 1947 than in 1946; the gain was only about 5 per cent as compared with an increase of almost 15 per cent in the production of durables. In attaining a level of about 173, based on the average for the five-year period, 1935-1939, the index of non-durable goods production was within 2 per cent of the peak level reported in 1943. At the same time, the 1947 level of non-durable goods output was some 22 per cent higher than in 1941 and about 2½ times the volume of the depression year (1932). This latter comparison exemplifies the relatively less elastic condition of nondurables as compared with durables, for, it will be recalled, in that year durables production was only about one-fifth of what it was in 1947.

RELATIONSHIP OF DURABLE TO NON-DURABLE MANUFACTURES

Twelve times in the 20 years since 1928, total manufacturing production has exceeded the volume of the previous year. Each time durables and nondurables, alike, contributed to the general advances that were recorded, but there the similarity diverges. Gains in the former, where they occurred, ranged from 13 per cent, as between 1928 and 1929 or between 1936 and 1937, to 45 per cent between 1940 and 1941. Increases in the latter category, *i.e.*, in nondurables, however, ranged from only 3 per cent as between 1933 and 1934 to 24 per cent between 1940 and 1941. The median average increase for those 12 years of rising production was about 30 per cent in the case of durable goods as contrasted with a median of only about 11 per cent for nondurables, a ratio of almost 3-to-1. It is here of as much significance to note that the increase in durables production between 1946 and 1947 was smaller than for each of the other 11 years of gains since 1928, except for 1929 and 1937, and that the 1947 gain in non-durables output was smaller than for any of the years of gains since 1928, barring only 1929. Is this a mere empiricism? Or is it portentous of trouble ahead; is it an harbinger of another 1930 or a 1938, of a depression or a recession? It need not necessarily be, though the maladjustment between the production of durables and output of nondurables, further aggravated in 1947, suggests the possibility of some retrenchment in manufacturing volume as a whole before 1948 has run its full course.

From the ratios between durable and non-durable goods output shown for the respective years in the adjoining table, one may see the relationships between the two which over the years have reflected both abnormal and subnormal conditions in respect to manufacturing activity as a whole. Roughly speaking, when the ratio is 1.00 or unity, as it was in 1939, it means relative balance between the production of durables and the output of nondurables. Such is a generally healthy picture and augurs well for a generally sustained level of manufacturing output as a whole. When the ratio is much above 1.00 as was true for 1947, it means that the rate of non-durable goods production is not high enough, through the processes of trade and exchange, to support for long the rate of output of durable goods. Present conditions, however, are somewhat modified by unprecedented export volume and could be even further thrown out of joint by large-scale assistance to much of the rest of the world under the proposed Marshall Plan, or even by a much enlarged program for national defense, the world situation being what it is.

PRODUCTION INDEXES FOR DURABLE AND NON-DURABLE MANUFACTURES[1]

(1935–1939 Annual Average = 100)

Year	Durable	Non-durable	Ratio: Durable / Non-durable
1919	84	62	1.35
1920	93	60	1.55
1921	53	57	.93
1928	117	85	1.38
1929	132	93	1.42
1930	98	84	1.17
1931	67	79	.85
1932	41	70	.59
1933	54	79	.68
1934	65	81	.80
1935	83	90	.92
1936	108	100	1.08
1937	122	106	1.15
1938	78	95	.82
1939	109	109	1.00
1940	139	115	1.21
1941	201	142	1.41
1942	279	158	1.77
1943	360	176	2.05
1944	353	171	2.06
1945	274	166	1.65
1946[2]	192	165	1.16
1947[3]	220	173	1.27

[1] Basic data from Board of Governors of the Federal Reserve System. Ratios for specified years computed by the author.

[2] Revised.

[3] Preliminary.

FOOD PRODUCTS

The index of manufactured foodstuffs output for 1947, at about 157 per cent of the average for the base period (1935-1939), was about 5 per cent higher than for 1946. Not only that, the year's total was greater than for any other year on record. Distressingly, however, it was accompanied by an upward spiraling in prices.

A look at the more important classes of manufactured foodstuffs discloses that, in 1947, wheat flour production was some 11 per cent greater than in the previous year;

that manufactured dairy products as a group exceeded the 1946 production volume by almost 15 per cent; that butter, alone, was produced in 18 per cent larger volume than in the preceding year; that cheese and canned milk showed good gains in output; that total production of meats and meat products was about 15 per cent heavier than in 1946. Other manufactured foods, however, did not fare so well; as a group the gain over 1946 was only nominal. Small gains in confectionery and other manufactured food items barely succeeded in counteracting a loss of some 11 per cent from 1946 in the output of processed fruits and vegetables.

Reflective as much of the surging cost of living as of full employment, retail sales of food at food stores in 1947 reached a new high volume of about $28,000,000,000, besting the volume of the previous year by some 16 per cent.

LIQUOR AND TOBACCO

The output of alcohol beverages as a whole in 1947 was about 4 per cent greater than in the preceding year. Malt liquors, whiskies, and other distilled spirits showed gains ranging from 8 to 30 per cent, to more than counteract a loss in rectified liquors of more than 20 per cent. Consumption of all classes of liquor was somewhat lower than in 1946, thus forcing some reduction in prices.

Tobacco products as a group recorded another new high in production; the over-all gain over 1946 amounted to about 3 per cent. For cigarettes alone, the 1947 production total was more than 5 per cent larger than was recorded in 1946.

TEXTILES, SHOES, APPAREL

The index of production of textiles and textile products barely equaled the level reported for 1946; nonetheless, the 1947 volume was some 63 per cent higher than was shown in the base period, 1935-1939. Textile fabrics, as a group, fell fractionally below the level reported in 1946 but remained some 50 per cent above the average level for the five-year period, 1935-1939. Cotton consumption during the year was off by some 3 per cent from the volume recorded in 1946 but was still some 43 per cent above the level for the base period. Much if not all of the decline in cotton consumption for 1947 may be attributed to the fact that consuming mills generally shortened their production schedules in May and June in reflection of the temporary "drying-up" of demand for goods on the part of large retail distributive outlets which, in trying to resist rising prices, had misjudged the market. In all, cotton textile mills produced close to 11,000,000,000 square yards of fabrics in 1947 of which some 1,500,000,000 square yards found their way into the export markets.

Rayon deliveries to consuming establishments during 1947 registered a new high record. Not only did the year's total exceed the 1946 volume by more than 10 per cent but in doing so it also pushed the index to a level some 170 per cent above the average for the five years, 1935-1939. Weavers of rayon goods produced in excess of 2,000,000,000 yards, for the first time in history. As the year wore on, the higher quality plied yarn fabrics outstripped the cheaper spun rayons. Prices for rayons, relatively soft during the early months of the year, hardened materially, forcing more and more manufacturers to allocate their production, equitably to meet the unsated demands. Buyers who had withdrawn from the market during the first quarter of the year in anticipation of even lower prices, especially for spun rayons which seemed in oversupply, scurried back to push prices to higher levels than ever before.

The hectic demand for rayons left its mark on what was once the great silk manufacturing industry. Weavers of silk fabrics produced not much more than 10,000,000 yards, only a faint shadow of the output totals of, let us say, during the lush 1920s.

Total production of wool textiles, as seen from the index of the Board of Governors of the Federal Reserve System, was almost 5 per cent less than during 1946; notwithstanding, the volume of output was still some 63 per cent higher than during the base period, 1935-1939. In the fabrics field, woolens had much the worst of it, especially during the initial half of 1947 when the market glut had unsettled the price structure, this in striking contrast with the strong and continuing demand for worsteds. The year's output of wool fabrics totaled some 560,000,000 yards, while the mills consumed a bit more than 700,000,000 pounds of scoured wools, a decline from the 1946 volume of about 6 per cent.

Total production of woolen yarns in 1947 showed a loss of virtually 20 per cent as contrasted with the preceding year; worsted yarns, on the other hand, showed an increase in output of some 5 per cent.

Consumption of carpet wools scored an advance over the 1946 volume amounting to almost 35 per cent; the year's total, at the same time, was about 78 per cent higher than the average consumption in the five years, 1935-1939.

Consumption of apparel wools dropped rather precipitately during 1947, the loss from the preceding year's volume amounting to almost 15 per cent; yet the garment industries generally recorded higher dollar volumes than for any other peacetime year. As the year came to a close there was evidence that some manufacturers, especially of men's suits, were certain to be operating to capacity at least through mid-1948. To channel production fairly, allotments were again invoked. Sensing even higher prices, retailers generally accepted the allotment basis of distribution in good grace having at least protected themselves to the extent that their orders were firm as of the date of placement.

The production of leather and leather products considered as a group was about 4 per cent lower than in 1946, though still some 17 per cent above the average output during the five-year period, 1935-1939. The general decline from 1946 was occasioned by a large loss in shoe output and in the tanning of sheep and lamb leathers; the decline in the former amounted to about 11 per cent and in the latter to about 22 per cent. Tanning of other leathers, on the other hand, showed gains over 1946, the most significant occurring with respect to cattle hides, and calf and kip leathers.

PETROLEUM AND REFINERY PRODUCTS

The petroleum industries broke all previous production records in 1947, not excepting the war years. Consumption figures, too, exceeded all earlier records, with the result that the petroleum industry at the close of the year was hard put to meet all demands upon it, domestic and foreign. Crude oil consumption during the year was about one-third higher than in 1941 and about 12 per cent greater than in 1946. Gasoline production was almost 9 per cent greater than in 1946; lubricating oils showed a gain in production over the preceding year of about 11 per cent; kerosene output was about 4 per cent higher; while fuel oil production during 1947 was some 5 per cent greater than in the previous year. The increase in the latter was much too small to meet the demand both for power and heating, as became particularly evident at the year's end. Apropos of the use of fuel oil for heating, it should be indicated that almost 800,000 new oil-burning heating units have been installed since 1945. With the demands of the export markets high, and the needs of the military both for current consumption and stock-piling great, to say nothing of the expanded use of oil for powering American industry, it is small wonder that the pinch in supply was on and that grave concern was voiced over the shortage and means to alleviate it.

PAPER AND PAPER PRODUCTS

The paper and paper products industries scored another advance in 1947 for yet another new high record of production. The index of output, at about 157 per cent of the average for the base period, 1935-1939, was some 9 per cent higher than in 1946. In all, some 21,150,000 tons of paper and paperboard, exclusive of newsprint, were produced under conditions of demand that never wavered during the year. Additions to plant capacities to be completed in 1948 promise to alleviate the tight conditions by making possible a production volume in excess of 22,000,000 tons.

Pulp production during 1947 was about 12 per cent higher than in the previous year. Paperboard output showed a gain of about 9 per cent over the 1946 volume. The production of printing papers, exclusive of newsprint, was almost 14 per cent greater than in the preceding year; fine paper gained by about 2 per cent; but no substantial change from the previous year was shown in the production of either wrapping papers or tissue and absorbent papers.

Newsprint production in 1947 was about 7 per cent larger than in 1946; nonetheless, the index of output was 9 per cent lower than the average for the five years, 1935-1939. On the other hand, thanks to imports, consumption of newsprint during the year was about 14 per cent heavier than in 1946. The printing and publishing industries, as a whole, reported 12 per cent greater activity in 1947 than in 1946.

CHEMICALS AND CHEMICAL PRODUCTS

The index of chemical products production in 1947 was some 5 per cent higher than in 1946. At 250, chemicals production was 150 per cent greater than the average during the base period, 1935-1939. Industrial chemicals production in 1947 was about 9 per cent greater than during the preceding year; rayon output showed a gain of similar proportions; soaps were produced in 14 per cent heavier volume than in 1946; while paints scored an advance of about 4 per cent. Plant expansions in the chemical field continued apace in 1947, bringing the total expenditures since the end of the war for new buildings and equipment to more than $2,000,000,000, chiefly in respect to organic chemicals and synthetic fibers, although it is to be remembered that as yet inorganic chemicals to meet the demands of industry account for almost 70 per cent of current production.

Plastics production during 1947 scaled all earlier records, with a total of about 1,000,000,000 pounds. How far this industry has come can best be indicated by contrast with the year 1929, when only about 55,000,000 pounds of plastics were produced, a volume not large enough to meet today's demands from the automobile industry alone. Vinyls and polystyrene showed the largest relative gains during 1947, paced closely by cellulose plastics and polyethylene. The vinyls find their chief uses in raincoats, shower curtains, and in many other household items; refrigerators, food lockers, and almost countless articles of kitchenware have broadened the uses for polystyrene.

RUBBER GOODS

The output of rubber products showed virtually no change between 1946 and 1947; yet, at 225, the index of production was 125 per cent higher than the average for the five year period, 1935-1939. For the first time since 1943, the consumption of natural rubber by rubber goods manufacturers exceeded the use of synthetics. Out of the year's total consumption of rubber of some 1,110,000 tons, 556,000 tons represented natural rubber. In addition, the industry used about 285,000 tons of reclaimed rubber during the year.

Passenger car tire production in 1947 amounted to about 77,000,000 tires, while truck and bus casings accounted for an additional 17,500,000 units. Altogether, too, some 80,000,000 inner tubes were produced during the year. In dollars, the 1947 production of rubber goods of every description amounted to about $2,750,000,000.

ELECTRIC UTILITIES, EQUIPMENT, AND HOUSEHOLD APPLIANCES

Thanks to high industrial activity, unprecedented employment levels, new highs in appliance sales, and a large volume of new home construction, electric power consumption in 1947 not only exceeded the wartime peak recorded in 1944 but was also some 13 per cent higher than in 1946. Two-thirds of the year's consumption total of about 305,000,000,000 kilowatts was supplied by privately managed companies. During the year, about 2,800,000 kilowatts of new capacity were put in place, so that by the year's end spare capacity was around 8 per cent, in contrast with an anticipated growth in load for 1948 of about 7 per cent. Such a margin, however, is far below the 20 or 25 per cent spare capacity deemed by the industry necessary to cope with any unforeseen contingencies, such as another major strike in the electrical equipment industries. As a result, the power generating industry has scheduled an expenditure of some $1,750,000,000 for new construction and equipment during 1948 on top of the $1,400,000,000 expended during the previous year. In all, generating capacity, both government-owned and privately operated, totaled 65,000,000 kilowatts at the end of 1947, while more than 500,000 additional farms were provided with service for the first time by the ever-expanding belt of power networks.

The year, too, will be remembered by the fact that more household appliances were produced than in any other 12 months in history, ranging all the way from electric toasters and curling irons to radios, refrigerators, television sets, washing machines, and electric ranges. Research, characteristic of the industry over the years, continued apace during 1947. In all, just to illustrate how active was manufacturing activity in the electrical appliance field, some 17,500,000 radio sets were produced during the year, inclusive of television, as compared with only about 15,000,000 in 1946 and a total of 13,000,000 for 1941, when FM sets and "video" were still little more than engineer's blueprints.

RAILROADS AND RAILROAD EQUIPMENT

Never before in peacetime did the railroads of the nation move so much freight as they did in 1947. Sectionally, the western roads bested those of the east and south, both because of the relatively greater expansion in industrial activity and because of so-called longer hauls. Notwithstanding the high traffic volume enjoyed by the industry as a whole, the railroads, of all our major industries, financially fared the worst, and this despite the fact that they were awarded what in more ordinary times would have been considered substantial rate increases. Mounting costs, both for materials they buy and for wages and salaries they had to pay, thus had much the better in the tug-of-war between costs and prices that characterized all industry to some degree or another during the year.

Despite substantial declines in earnings, in part alleviated by the freight rate increase that, on an overall basis, averaged about 17½ per cent and some upward adjustments in passenger rates, the railroads continued to add materially to their rolling stock during the year in their attempts not only to modernize their lines to improve efficiency and cut unit costs but also to reduce the incidences of equipment shortages, particularly with respect to freight cars and locomotives. Some 800 new locomotives were installed during the year, of which more than 700 were diesels, while at the year's end an additional 1,200 locomotives were still on order with the locomotive builders. After lagging during the initial half of the year, deliveries of new freight cars to the railroads as the year closed was at an annual rate of better than 100,000, with unfilled orders suggesting that, barring strikes in major supplying industries, monthly deliveries of freight cars sometime during the first half of 1948 would reach a total of 10,000 units.

IRON AND STEEL

In boomerang fashion, the strikes during 1946 in the steel and the feeder industries, returned to plague our entire economy in 1947; that is to say, the lost ingot production of that hectic year of 1946, could it have somehow been found, would have more than spelled the difference between the relative famine that was and the plenty that might have been in 1947, and at prices that were fair to all comers.

Unparalleled demands from industry brought with it a steel production in 1947 of about 85,000,000 net tons of ingots and castings, for a volume never before reached in peacetime. Measured by the index of the Board of Governors of the Federal Reserve System, the 1947 output of all steel and steel products scored an advance of some 31 per cent over the total of 1946; open hearth steels increased by about 27 per cent while electric steels scored a gain of some 45 per cent.

NON-FERROUS METALS

As a group, non-ferrous metals production was some 19 per cent greater in 1947 than in the preceding year. Despite this large advance, the index was still some 9 per cent lower than that shown for 1945; notwithstanding, the 1947 level of output was about 86 per cent higher than the average for the five-year base period, 1935-1939. Smelters and refiners, and fabricators, too, participated in 1947 in the general advance in production that was scored over the level of the previous year. As was to be expected, of all major non-ferrous metals used in industry, aluminum production in 1947 showed the best relative performance. For the first time since 1944, primary aluminum output was in excess of 1,000,000,000 pounds, a volume apparently still too small to meet all demands, judging from the backlog of orders yet unfilled at the year's end.

AUTOMOBILES

Some 5,000,000 motor vehicles were produced in 1947, of which about 3,500,000 were passenger cars. Though demand for new cars continued unabated, the year's production volume was still far behind the volume of previous peacetime peak years, chiefly because of steel shortages; yet, in all but the so-called lowest price brackets, it was becoming apparent that assemblies of new cars, as 1947 came to a close, were getting much closer to true demands than at any time since the end of the war. Meanwhile, used car prices, particularly for models antedating 1947, seem to suggest that the time is not too far off now when new car deliveries, even of the lower-priced models, will be much more on a current basis than is presently the case.

MACHINERY AND EQUIPMENT

The index of production of machinery for 1947 was about 15 per cent higher than that recorded for the previous year. Machine tools output, alone, aggregating about $300,000,000 in 1947, though good, was much smaller than it otherwise might have been but for the bottlenecks and shortages that impeded plant modernizations and expansions.

Office equipment manufacturers enjoyed their best year in our peacetime history, helped as much by high demands at home as by unprecedentedly high demands of export markets. As was to be expected from the peak level of farm income, manufacturers of farm equipment in 1947 produced and sold more goods than ever before in their history.

BUILDING MATERIALS

Lumber output in 1947 was about 8 per cent larger than in the preceding year. In recording an index of 143, the 1947 volume was 43 per cent greater than the average for the five years, 1935-1939; yet, it was only in the final quarter of the year that supplies of most species of building lumber were available in quantities sufficient to meet current demands. Even so, millwork items, notably stock doors and windows, continued in tight supply, giving many headaches to home-builders who had not laid in their supplies.

Stone, clay, and glass products as a group showed a production index in 1947 of 206, for a gain over the preceding year of about 8 per cent and for an increase over the average for the base period of 106 per cent; cement production, alone, scored an advance over the previous year's total of almost 14 per cent without materially alleviating the shortage condition; clay products, chiefly bricks, showed a gain in production over the volume of the previous year amounting to almost 10 per cent. The output of gypsum and plaster products was at an all-time high for 1947, yet as the year ended supplies were still rather tight. But for these and other bottlenecks, notably in nails, cast-iron soil pipe, and certain sizes of galvanized pipe, the 1947 construction record, particularly in the housing field might have been more eloquent.

CONCLUSION

More eloquent, too, might have been the entire economic record of 1947, had government, industry, and labor succeeded in finding the common denominator for a successful war against our most vicious enemy, inflation. Calling the kettle black could not do it; costly investigations and Congressional entourages could not do it; well-meaning or high-sounding mouthings of industrial leaders and of high-ups in the ranks of organized labor could not do it. No, not alone. Perhaps conditions were not yet bad enough to move them to collective action. Bad or not so bad, 1948 must produce the climate for decisive action or our entire economy will suffer one of its worst setbacks in recent times.

THE UNITED STATES TARIFF COMMISSION

By Oscar B. Ryder
Chairman, The United States Tariff Commission

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FUNCTIONS AND ACTIVITIES

The United States Tariff Commission, an independent executive agency of the United States Government, was created by Act of Congress of Sept. 8, 1916, as a nonpartisan investigating and fact-finding body to assist the President and the Congress in matters pertaining to tariff and to foreign commercial policy.

The present laws that prescribe the function of the Tariff Commission are the Tariff Act of 1930 as amended (sections 330-341); section 350, the Trade Agreements Act; section 22 of the Agricultural Adjustment Act as amended, and section 504 (d) of the Philippine Trade Act of 1946; and Executive Order 9832 of Feb. 25, 1947.

Beginning in the fall of 1939, the Commission directed its activities largely to immediate war problems and to giving assistance to defense agencies. As war agencies succeeded defense agencies, the cooperative activities of the Commission increased, and every possible assistance was given to those charged with handling the economic phases of the prosecution of the war. Throughout the war the Commission continued its assistance to war agencies.

RETURN TO PEACETIME ACTIVITIES

During 1947 the work of the United States Tariff Commission has been marked by the almost complete cessation of special activities related to the Second World War and the return on a full-time basis to normal peacetime activities related to the tariff and foreign trade. Many international trade problems which confronted the nation during the year had existed, at least in some degree, before the war. As a result of the war, however, most of these problems were aggravated; in addition, others were newly created.

In 1947 the work of the United States Tariff Commission was much affected by the important changes in the world economic scene, and by the efforts of the Administration to bring about such adjustments in the international trade policy of this country and other countries as would help to meet the difficult post-war conditions.

TRADE AGREEMENTS MEETING AT GENEVA

Much of that work has been concerned with requests for information by the Congress, its committees, and members on various aspects of the current international trade situation and with the duties assigned to the Commission by the Trade Agreements Act and Executive orders thereunder. During the early months of 1947 the Commission continued the work, begun in 1946, of preparing materials for the multilateral trade agreement negotiations held at Geneva, Switzerland, beginning in the spring of 1947; it also assisted the Committee for Reciprocity Information by digesting the briefs submitted to it and the oral testimony presented at the public hearings held in Washington before the Geneva negotiations began.

INTERNATIONAL TRADE ORGANIZATION CHARTER

At the request of the House Committee on Ways and Means, the Commission analyzed all the articles in the London draft of the proposed International Trade Organization charter. At the request of the House Committee on Agriculture the Commission also made an over-all analysis of the effects which adoption of the proposed ITO charter would have on the agricultural program of the United States. Later an analysis was made of the Geneva draft of the proposed charter.

The Commission assisted the Senate Committee on Finance during its hearings on the trade agreements program and the proposed ITO charter. The Chairman of the Commission testified before the Committee; the Commission also assigned personnel to assist individual members of the Committee, and prepared various memorandums and information for incorporation in its record. When, in May 1947, the House Ways and Means Committee held hearings on the administration of the trade agreements program and the formation of the ITO, the Tariff Commission assisted the Committee by supplying it with numerous Commission reports and memorandums previously prepared, by furnishing special memorandums requested by members of the Committee, and by assigning members of its staff to aid both the majority and the minority members of the Committee.

UN CONFERENCE ON TRADE AND EMPLOYMENT

Twenty-seven members of the Commission's personnel, including five members of the Commission, served in various capacities in the work of the United States Delegation to the Second Meeting of the Preparatory Committee of the United Nations

Conference on Trade and Employment, which was held at Geneva from April through October 1947, and which dealt both with the ITO charter and with the multilateral trade agreement. While the Conference was in session, members of the Commission's staff in Washington provided much technical and statistical information for the United States delegation in Geneva.

SUMMARIES OF TARIFF INFORMATION

The Commission spent considerable time in 1947 doing the necessary preparatory work for revising and bringing up to date the Summaries of Tariff Information, as requested in a resolution of the Committee on Ways and Means adopted in July 1947. These summaries became its principal work in the ensuing few months. It has also laid plans for carrying out the other requests contained in that resolution, namely, to rewrite and otherwise bring up to date the Dictionary of Tariff Information; to keep currently informed and to report immediately to the Committee on Ways and Means regarding rates of duty which appear to be so low as to give imports a substantial advantage over domestically produced commodities or so high as to exclude from the domestic market reasonable competition from imports; and to establish and report to the committee the substantive and procedural criteria by which, in the administration of the "escape clause" in trade agreements, it will determine whether imports of a particular commodity are entering in such quantities as to injure or threaten injury to any domestic unit of agriculture, labor or industry.

MARSHALL PLAN REQUIREMENTS

In response to the request of the House Select Committee on Foreign Aid, the Commission, together with other agencies of the United States Government, worked on a study of probable requirements of the countries under the Marshall Plan for specific products, and the potential sources of supply for any deficits of these countries as a group. The Tariff Commission's part of the study involved approximately 40 products.

OPERATION OF TRADE AGREEMENTS ACT

During 1947, the duties of the Tariff Commission in the operation of the trade agreements program were expanded. This expansion is likely to have much more effect on the actual work of the Commission in future years than it did in 1947. Under Executive Order 9832, certain existing trade agreement procedures were formalized and made mandatory; in addition, two important functions in the administration of the Trade Agreements Act were formally delegated to the Tariff Commission. The Executive order required that each future trade agreement contain a clause safeguarding United States producers against serious injury resulting from trade agreement concessions and made the Tariff Commission responsible for investigating complaints as to any injury or threat of injury and for reporting to the President with recommendations in appropriate cases. The Executive Order, in addition to specifically setting forth the Commission's already recognized function of supplying the interdepartmental trade agreements organization with information on imports into the United States, required that the Commission make an annual report to the President and the Congress on the operation of the trade agreements program.

OTHER ACTIVITIES OF THE TARIFF COMMISSION

Other work of the Tariff Commission during 1947 included the completion of investigations, with respect to quotas on short harsh cotton and on long staple cotton, conducted under the provisions of section 22 of the Agricultural Adjustment Act, as amended; the publication of reports on Burlap, China Clay, Cotton Cloth, Grapes and Grape Products, Mica, Newsprint, and Softwood Lumber in the series on War Changes in Industry

(20 reports had previously been issued in this series); the completion of seven reports in the series on trade problems of the American republics, making 45 that have been issued to date in the series; and the issuance of the annual and monthly data on United States production and sales of synthetic organic chemicals. Work on certain important projects of the Commission, such as the Review of Customs Administrative Laws and the Report on the Effect of the War on the General Foreign Trade Position of the United States, had to be deferred during 1947 because of the limitation on the size of the Commission's staff and its occupation with other urgent work.

As international situations and problems shift from year to year, the work of the Commission varies. As previously stated, the fundamental purpose of the Commission's activity is to furnish information regarding tariff and trade matters to the President, the Congress, and other government officials responsible for the determination of United States commercial policy.

ADMINISTRATION OF THE TARIFF LAWS

By C. A. FREEMAN

DIVISION OF FISCAL ADMINISTRATION, BUREAU OF CUSTOMS,
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GENERAL

Hampered by lack of raw materials, dogged by delays in the conclusion of peace terms, with staggering reparation claims facing the Nazi satellites, and with wasted fields and factories unrestored in Nazi-occupied areas, world trade, nevertheless, showed continued improvement during the fiscal year ended June 30, 1947. The value of imported commodities released for consumption reached an all-time high of $5,386,956,000, exceeding by $148,335,000 the previous record registered in 1920. Thus did the remainder of the world attempt to build up its purchasing power to secure in this country the goods so greatly needed for the reconstruction and restoration of its economy.

CUSTOMS COLLECTIONS

Following the generally upward trend maintained through the last year of the war and the first post-war year, customs collections continued to rise during the first seven months of the fiscal year ended June 30, 1947. Despite the decline after January, total collections for the year ($497,533,914) reached the highest level attained since the passage of the Tariff Act on June 17, 1930, and were exceeded in customs history only during the eight years immediately preceding the passage of that act.

Increased collections were received from all types of entries except those involving withdrawals from bonded warehouses, the sharpest rise being in the case of mail entries and baggage entries which reflected respectively the continued growth in the volume of tourist travel and the continued flood of commercial importations by mail. The slight recession in the case of warehouse withdrawals resulted from lessened consumption of unmanufactured wool and distilled liquors which are two of the commodities most frequently warehoused.

COMMODITY REVENUE TREND

Most of the commodity groups provided in the Tariff Act showed an increased volume in importations which resulted in substantial increases in customs revenue. Decreases occurred in only four groups. Raw wool which yielded $150,045,369 in revenue in 1946 declined to $121,105,594 during 1947, and except for the peak reached during the previous year this represented a larger amount received from imports of this commodity than in any previous year in customs history. Imports of distilled spirits and other beverages continued to decline for the third successive year from the all-time of 1944 when domestic stocks were depleted because of war restrictions.

Sugar which was largely imported free of duty by the Commodity Credit Corporation during the two years preceding Jan. 1, 1947 was again restored to a dutiable status and as a result yielded more than four times the revenue realized in 1946. The admission of most of the lumber importations free of duty after Oct. 25, 1946, as an emergency measure to aid the reconversion program, resulted in diminished revenue from the wood and manufactures schedule.

A study recently made in the Bureau of Customs, shows some significant trends in the types of duties used for the collection of revenue. Three types are provided in our tariff: specific, based on a specified rate per pound, bushel or yard; ad valorem, based on a specified percentage of the value; and compound, a combination of the other two types. In a general way, specific rates are applied to raw materials and to manufactured articles which can be easily weighed or measured, such as sugar and distilled spirits, while ad valorem and compound rates are applied to manufactured goods, especially to those which are subject to wide variations in value. This study discloses a sharp decline in the last ten years in the average ad valorem equivalent (ratio of duty to value) for all three types of duties, owing partly to the effect of the Trade Agreement program, intensified in the case of goods dutiable at specific rates by recent inflationary tendencies and partly by changes in the type of goods imported. The blackout imposed by the war on shipments of manufactured goods from Europe is shown in the shrinking in the percentage of total duties levied at ad valorem or compound ratio from more than one-third of the total in 1938 to a mere one-eighth of the total in 1944. With the return to more nearly normal conditions, such duties represented 30 per cent of the total collected in 1947.

REVENUE TREND BY COUNTRIES

Imports from Europe continued to increase so that for the second successive year this area was the most important continental source of customs revenue. Among the individual countries, however, a very different condition existed. Australia, with its large shipments of high grade raw wool, continued to be the most important source of customs receipts. Cuba, with sugar again dutiable, ranked second and Canada third, with

MERCHANDISE ENTRIES

	Number of Entries		Duties Collected		Percent of Increase or Decrease (—)	
	1946	1947	1946	1947	No. Entries	Duties
Consumption entries	426,434	497,019	254,024,733	304,260,165	16.6	19.7
Warehouse and rewarehouse entries	35,586	44,815	—	—	25.9	—
Warehouse withdrawals	110,964	130,893	170,861,955	166,000,598	16.4	−2.8
Mail entries	383,127	548,332	1,030,535	1,766,851	43.1	71.4
Baggage entries	1,260,195	1,266,036	1,086,235	1,695,586	1.5	56.1
Informal entries	515,373	554,208	1,469,201	2,032,651	7.5	38.4
Appraisement entries	14,312	17,107	188,824	342,717	19.5	81.5
Increased and additional duties	—	—	7,957,983	10,642,030	—	33.7
Other	440,560	551,298	553,300	6,226,531	25.5	88.6
Total	3,186,551	3,609,708	437,172,766	492,967,129	13.3	11.5

VALUE OF DUTIABLE IMPORTS AND AMOUNTS OF DUTIES COLLECTED AT SPECIFIC, AD VALOREM, AND COMPOUND RATES

(Fiscal Years 1938 to 1947, in millions of dollars)

Fiscal Year	Total		Specific		Ad Valorem		Compound		Average Ad Valorem Equivalent				Percent of Total Duty		
	Value	Duty	Value	Duty	Value	Duty	Value	Duty	Total	Specific	Ad Valorem	Compound	Specific	Ad Valorem	Compound
1938	909	348	575	224	277	90	57	34	38	39	33	60	64	26	10
1939	820	312	502	206	268	78	50	28	38	41	29	57	66	25	9
1940	920	340	611	245	265	71	44	24	37	40	27	56	72	21	7
1941	1011	385	769	315	205	50	37	20	38	41	24	53	82	13	5
1942	1166	386	894	319	226	45	46	22	33	36	20	49	83	12	5
1943	1032	330	827	288	174	28	31	14	32	35	16	45	87	9	4
1944	1249	421	1015	372	201	36	33	13	34	37	18	39	88	9	3
1945	1199	343	910	283	251	45	38	15	29	31	18	38	83	13	4
1946	1592	429	1103	323	430	83	59	23	27	29	19	39	75	19	6
1947	2096	476	1508	333	513	115	75	28	23	22	22	37	70	24	6

the United Kingdom, Switzerland, Argentina, and Mexico following in the order named. With lessened demand for the lower grade wools from South America, sharp declines took place in the customs revenue realized on imports from Argentina and Uruguay, the chief sources of such wool, while the fine grade wools of Australia, New Zealand, and the Union of South Africa yielded revenues little different from those in 1946. Most of the European countries showed sharp increases in duty yield, declines appearing only in the case of Switzerland which restricted its exports of watch movements to this country, in Spain and Portugal, which are returning to their more normal trade with the United States after the lush years when the rest of Europe was blacked out, and in Germany whose shipments of hops to the United States in 1946 were not equaled during the past year.

DUTY REFUNDS

Some duties are collected in excess of the amounts subsequently found to be due. The refund of such excessive duties amounted to $6,081,925 in 1947 and $4,089,176 in the previous year. Another type of refund designated as a drawback is provided after exportation under proper safeguard of merchandise previously imported. Such drawbacks aggregated $10,583,023 in 1947 and $6,638,500 in 1946. More than 99 per cent of the drawback yielded was on merchandise manufactured from imported materials. Among the more important of these in 1946 were sugar, wool, coal tar products, crude petroleum, unmanufactured tobacco, copper, and several of the other metals.

ENTRIES OF MERCHANDISE

Reflecting the upward trend in the volume of customs business, the number of entries of merchandise continued to increase for the fourth successive year. This increase appeared in all types of entries, the sharpest being in the mail entries, which indicated the resumption of commercial shipments by mail. The very small increase in the number of baggage entries followed an unusually large increase in 1946 and indicated that tourist travel was maintained at the high level of the year before.

INTERNATIONAL TRAFFIC

For the sixth consecutive year, border traffic increased. Almost 15,-

VALUES OF DUTIABLE AND TAXABLE IMPORTS FOR CONSUMPTION AND ESTIMATED DUTIES AND TAXES COLLECTED BY TARIFF SCHEDULES

(Fiscal Year 1946 and 1947)

Tariff Schedule	Value		Estimated Duties and Import Taxes[1]		Percentage Increase or Decrease (−)	
	1946	1947	1946	1947	Value	Duties
1. Chemicals, oils, and paints	$ 70,598,327	$124,585,012	$ 10,959,060	$ 17,265,725	76.5	57.6
2. Earths, earthenware, and glassware	20,325,163	40,260,600	5,802,236	12,646,831	98.1	118.0
3. Metals and manufactures	174,136,915	232,034,360	46,442,956	53,310,006	33.3	14.8
4. Wood and manufactures	50,873,862	33,414,610	3,520,114	3,439,305	−34.3	−2.3
5. Sugar, molasses, and manufactures	33,489,140	247,233,974	9,216,007	41,090,373	638.3	345.9
6. Tobacco and manufactures	83,990,446	97,368,036	23,882,031	26,809,822	15.9	12.3
7. Agricultural products and provisions	317,361,983	329,758,634	39,786,482	39,115,380	3.9	−1.7
8. Spirits, wines, and other beverages	75,612,468	83,634,378	43,637,160	39,467,544	10.6	−9.6
9. Cotton manufactures	26,683,741	21,706,611	4,936,715	6,059,265	−18.7	22.7
10. Flax, hemp, jute, and manufactures	59,517,373	124,482,597	9,100,448	16,289,311	109.2	79.0
11. Wool and manufactures	268,152,590	249,950,258	165,206,165	138,577,234	−6.8	−16.1
12. Silk manufactures	3,490,855	4,925,129	1,690,673	2,328,123	41.1	37.7
13. Manufactures of rayon or other synthetic textiles	7,895,002	20,695,753	3,018,864	6 508,736	162.1	115.6
14. Pulp, paper, and books	11,027,260	20,666,289	1,448,225	2,760,859	87.4	90.6
15. Sundries	252,598,190	277,445,220	45,763,735	53,575,036	9.8	14.6
Free list commodities taxable under the Revenue Act of 1932 and subsequent acts	135,241,794*	186,222,920	14,494,175*	15,261,019	37.7	5.3
Dutiable under Section 466, Tariff Act of 1930, etc.	1,195,859*	2,039,889	501,692*	1,015,615	70.6	102.4
Total	1,592,190,968	2,096,424,270	429,406,738	475,520,184	31.7	10.7

[1] Taxes collected on dutiable commodities under the revenue acts and the Sugar Act of 1937 are included in appropriate schedules.

* Revised.

VALUE OF DUTIABLE IMPORTS FOR CONSUMPTION AND ESTIMATED DUTIES COLLECTED, BY COUNTRIES

(Fiscal Years 1946 and 1947)

	Duty		Value		Percentage Increase or Decrease (−)	
	1946	1947	1946	1947	Duty	Value
Europe:						
Austria	58,803	475,408	251,174	2,374,836	708.5	845.5
Belgium and Luxembourg	5,221,536	9,117,164	47,161,534	58,831,062	74.6	24.8
Bulgaria	159,810	591,460	355,581	1,891,036	270.1	431.8
Czechoslovakia	1,766,111	7,419,015	6,494,302	21,609,156	320.1	181.6
Denmark	215,598	771,131	1,203,843	3,570,171	257.7	196.6
Finland	42,630	861,779	204,395	3,915,027	2121.5	1815.4
France	4,452,529	14,360,701	16,177,283	43,364,492	222.5	168.1
Germany	525,462	435,860	2,371,173	1,439,172	−17.1	−39.3
Greece	843,981	2,551,075	2,164,688	10,786,963	202.3	398.3
Italy	1,701,114	12,878,425	6,777,258	39,863,634	657.1	488.2
Netherlands	976,739	3,139,443	10,181,385	23,163,075	221.4	127.5
Norway	1,081,637	2,488,673	4,422,752	13,058,175	130.1	195.2
Portugal	4,405,003	3,244,403	14,571,534	10,092,318	−26.3	−30.7
Spain	10,322,027	6,141,734	45,598,203	32,428,322	−40.5	−28.9
Sweden	1,692,867	2,856,819	8,065,639	12,216,229	68.8	51.5
Switzerland	37,992,394	29,563,795	102,944,747	84,541,914	−22.2	−17.9
U.S.S.R.	1,278,901	1,437,217	6,161,031	9,942,515	12.4	61.4
United Kingdom	27,410,401	39,488,716	80,714,790	119,034,332	44.1	47.5
Other Europe	610,036	977,932	1,640,494	3,777,212	50.5	130.2
Total Europe	100,757,579	138,800,750	357,461,806	495,899,641	37.8	38.7
North and Central America:						
Canada'	43,314,126	42,426,041	279,008,406	274,136,842	−2.1	−1.7
Cuba	24,775,910	52,452,862	95,008,312	304,430,827	111.7	220.4
Dominican Republic	1,468,691	1,232,388	5,279,161	6,649,359	−16.1	26.0
French West Indies	119,317	56,898	251,938	83,363	−52.3	−67.0
Haiti	903,454	468,368	2,882,633	2,558,882	−48.2	−11.2
Iceland	184,614	158,701	1,533,762	1,158,657	−214.0	−24.5
Jamaica	500,811	283,362	1,072,001	683,879	−43.4	−36.2
Mexico	21,087,998	17,544,276	115,642,020	114,276,349	−16.8	−1.2
Netherlands West Indies	1,717,585	2,961,968	12,589,088	31,183,711	72.4	147.7
Newfoundland	562,360	616,815	4,480,712	7,880,596	9.7	75.9
Other countries	633,808	703,787	4,022,852	4,724,020	11.0	17.4
Total North and Central America	95,268,674	118,905,466	521,770,885	747,766,485	24.8	43.3
South America:						
Argentina	40,031,611	28,359,744	101,359,400	107,625,610	−29.2	6.2
Bolivia	542,786	582,531	1,019,500	1,440,008	7.3	41.2
Brazil	7,893,628	7,173,689	53,001,971	52,516,932	−9.1	−0.9
Chile	4,909,899	3,980,867	12,335,660	11,164,669	−18.9	−9.5
Colombia	1,001,748	1,436,588	10,776,923	20,500,852	43.4	90.2
Ecuador	642,094	727,329	5,816,561	5,971,201	13.3	2.7
Paraguay	225,164	176,279	2,970,269	2,318,293	−21.7	−22.0
Peru	2,274,101	2,382,161	8,732,523	13,982,392	4.8	60.1
Surinam	689,970	1,204,000	4,857,018	8,196,742	74.5	68.8
Uruguay	23,513,694	13,589,269	39,705,979	27,929,226	−42.2	−29.7
Venezuela	8,240,274	8,611,031	80,062,309	110,790,884	4.5	38.4
Other countries	91,404	161,999	403,769	953,827	77.2	136.2
Total South America	90,056,373	68,385,487	321,041,882	363,390,636	−24.1	13.2

—	Duty		Value		Percentage Increase or Decrease (—)	
	1946	1947	1946	1947	Duty	Value
Oceania:						
Australia	68,988,968	65,889,320	109,834,166	115,790,772	—4.5	5.4
New Zealand	9,835,104	11,011,518	15,708,183	16,241,841	12.0	3.4
Other countries	54,820	39,990	423,513	638,130	—27.1	50.7
Total Oceania	78,878,892	76,940,828	125,965,862	132,670,743	—2.5	5.3
Asia:						
China	3,187,232	8,299,870	14,358,352	48,995,496	160.4	241.2
Formosa, Korea, Japan	100,182	592,540	867,438	2,223,617	491.5	156.3
Hongkong	60,056	339,888	242,746	1,726,503	466.0	611.2
India	8,680,764	13,175,261	73,354,943	119,251,364	51.8	62.6
Iran	5,572,830	3,916,666	12,639,408	12,453,056	—29.7	—1.5
Iraq	854,789	955,766	5,500,099	5,149,729	11.8	—6.4
Netherlands Indies	1,749,579	1,718,233	2,612,307	3,395,154	—1.8	30.0
Palestine	2,314,085	1,035,799	22,763,038	10,025,067	—55.2	—56.0
Syria	952,027	1,206,321	1,457,918	3,211,169	26.7	120.3
Turkey	14,673,432	15,013,520	50,490,083	50,512,483	2.3	—
Other countries	236,823	502,917	2,278,149	3,803,785	112.4	67.0
Total Asia	38,381,799	46,756,781	186,564,481	260,747,423	21.8	39.8
Africa:						
Egypt	1,293,859	2,324,961	14,424,108	26,939,404	79.7	86.8
Gold Coast	1,087,901	1,467,563	2,141,474	3,870,257	34.9	80.7
Maderia Islands	4,480,778	3,271,347	7,676,488	5,210,200	—27.0	—32.1
Madagascar	223,802	459,580	4,200,852	9,245,328	105.4	120.1
Union of South Africa	18,064,410	16,500,760	47,162,602	45,339,688	—8.7	—3.9
Rhodesia	271,455	799,569	556,015	1,541,737	194.5	177.3
Other countries	641,068	906,597	3,224,513	3,802,728	41.4	17.9
Total Africa	26,063,273	25,730,377	79,386,052	95,949,342	—1.3	20.9
Grand Total	429,406,738	475,520,184	1,592,190,968	2,096,424,270	10.7	31.7

000,000 automobiles and buses entered the United States from contiguous countries during 1947, carrying more than 47,000,000 passengers. With the continued increase in automobile traffic, however, the number of passengers arriving by train again declined. Vessel and aircraft arrivals were more numerous, but with the return of much of the overseas service personnel, the number of passengers arriving both by air and by sea was smaller than in 1946.

LAW ENFORCEMENT

Slightly fewer seizures were made in 1947 than during the preceding year, but their value was almost double that of 1946. The heavy tourist travel resulted in substantial seizures of cameras, furs, jewelry, watches, and wearing apparel, items which tourists are prone to attempt to smuggle. As an economy measure, the border patrol service along the Canadian border was discontinued and the personnel who wished to remain in the Customs Service were given other assignments. The Mexican border patrol, however, was continued in operation, since smuggling in this area, particularly of marihuana and other narcotics, continued to be a matter of concern to enforcement officers.

RAILROADS

By W. T. Faricy
President, Association of American Railroads

GENERAL

Again in 1947, as in prior years, the great bulk of the nation's transportation requirements was handled by its system of privately owned and operated steam railroads. Notwithstanding a limited supply of freight cars and other equipment, a situation over which the railroads have had little or no control in the past six years, the transportation needs of manufacturing, agricultural, mining, and general business activities were well served by the rail carriers in 1947. While complete figures for 1947 are not yet in hand, it seems probable that the railroads transported more tons of freight than ever before, even surpassing the wartime high of 1944. The ton-miles of service performed, although below the record wartime years because of the return of average hauls per ton to more nearly normal levels, far exceeded those of any previous peacetime year.

The sustained high level of general business activity in the United States, which began in the latter part of 1946 and continued throughout 1947, was accompanied by inflationary trends in the nation's price structure. Further wage increases, on top of the substantial ones granted in 1946, made it necessary for industry generally to raise prices in order to maintain a balance between income and outgo. The railroad industry, albeit unwillingly, was swept along with the spiraling tide of increasing costs and prices.

Since 1939 railroad annual operating costs have been increased by about $3,250,000,000 as a result of increases in employee wage rates, in unit prices of fuel, materials, and supplies, and in payroll tax rates. To offset this over-all increase of 76 per cent in unit costs, the railroads have sought authority to increase freight rates, passenger fares, and mail pay on the average by about 48 per cent. Some of the increases sought were authorized by the Interstate Commerce Commission in decisions handed down during 1947; others were still pending at the end of the year.

While most other industries are free to adjust their price structures promptly to meet new operating costs, the regulated railroad industry must go through the tedious, and sometimes lengthy, procedure of public approval, as determined by Federal and state regulatory commissions. While the Interstate Commerce Commission worked diligently in 1947 to pass upon railroad petitions for increased rates and fares, the lapse of time between the impact of new costs and the effective dates of rate and fare increases was costly to the railroads. As a result, railroad net earnings in 1947 represented a rate of return on net investment (after deducting accrued depreciation) of only about 3⅓ per cent. This comparatively low rate of return in a year of very high traffic volume indicates the effect of sharply rising costs and delayed rate and fare increases.

Deliveries of new freight and passenger cars and new locomotives in 1947 were disappointing. During the war years, the construction of new railroad equipment was necessarily restricted because of shortages in steel and other critical war materials. This situation, together with the hard usage to which railroad facilities were put during the war, built up a considerable need for new railroad equipment at the end of the war. The heavy volume of traffic handled by the railroads in the post-war period to date further emphasized this need. However, from Sept. 1, 1945 to Nov. 30, 1947, Class I railroads obtained deliveries on only 105,930 new freight cars, while retiring 149,202 old cars from service, and installed only 1,549 new locomotives, while retiring 4,418 old ones. At the end of November 1947, there were 125,395 freight cars, 1,180 locomotives, and 2,672 passenger train cars on order. Some improvement in the rate of monthly deliveries took place in the late months of 1947, and it is expected that 1948 will witness further improvement in the delivery of this badly needed new equipment.

FREIGHT TRAFFIC VOLUME

All railroad statistics hereinafter given apply to the Class I group, or those railroads with annual operating revenues of $1,000,000 or more. Such companies operate about 95 per cent of the total railway mileage of the United States and earn approximately 97 per cent of the total revenues.

Railroads originated approximately 1,500,000,000 tons of freight in 1947, about 10 per cent more than were originated in 1946 and fractionally higher than in the peak war year of 1944. The bulk commodities, such as coal, coke, iron ore, and grain, were primarily responsible for what now appears likely to be a new all-time record in railroad freight tonnage, though manufactured products also moved in considerable volume. Reductions below 1946 were recorded in livestock and L.C.L. movements, probably the result of increased motor truck operations. An all-time record wheat crop, the foreign aid program, and the comparatively few work stoppages in industry due to labor disputes, were the outstanding factors which brought about the record freight tonnage handled by the railroads in 1947.

Ton-miles of freight handled in 1947 approximated 647,000,000,000, an increase of between 9 and 10 per cent over 1946, but 12 per cent below the 1944 peak. The long hauls of war goods to the ports, particularly to the West Coast ports, raised the average haul of all freight by more than 120 miles during the war period. Since the end of the war, the average haul per ton of freight has declined, but in 1947 it was still greater than in prewar years by about 60 miles, or 18 per cent. Ton-miles in 1947 were greater than in 1946 in every month of the year except July. In that month, coal production was considerably reduced while the new labor contract was being negotiated.

PASSENGER TRAFFIC VOLUME

Passenger traffic continued its postwar decline in 1947. Following January 1946, each of the remaining 11 months of that year and each of the 12 months of 1947 showed decreases below the corresponding month of the preceding year, a total of 23 consecutive months of decline. A halt in this downward trend is not yet in sight. It was to be expected, of course, that railroad passenger traffic would fall considerably from the very high volume attained during the war period. That decline in 1947 was about 53 per cent below the 1944 peak —45,000,000,000 passenger-miles in 1947 compared with 95,500,000,000 in 1944. Compared with 1946, the decline in 1947 passenger-miles was about 31 per cent.

In Table I, statistics of tons of freight originated, ton-miles, and passenger-miles for the year 1947 and for earlier years are shown. The entries for 1947 are necessarily partially estimated, as complete figures for the

TABLE I

RAILROAD TRAFFIC

Year	Tons Originated (000,000)	Revenue Ton-Miles (000,000)	Revenue Passenger-Miles (000,000)
1920	1,255	410,306	46,849
1929	1,339	447,322	31,074
1939	902	333,438	22,651
1940	1,009	373,353	23,762
1941	1,228	475,072	29,350
1942	1,421	637,984	53,659
1943	1,481	727,075	87,820
1944	1,491	737,246	95,549
1945	1,425	681,001	91,717
1946	1,367	591,982	64,673
1947*	1,500	647,359	44,790

* Partially estimated.

year were not available at the time this was written.

In reviewing the traffic statistics given in Table I, it is of interest to note the railroad estimates of ton-miles and passenger-miles for the year 1948, submitted at final hearings on the application for increased freight rates (Ex Parte No. 166) in December, 1947. Those estimates were 630,000,000,000 revenue ton-miles and 39,000,000,000 passenger-miles for 1948; respective declines below 1947 of 3 per cent and 13 per cent.

WAGE RATES

The considerable increases in railroad freight and passenger traffic in the post-war period over the pre-war period, as shown in Table I, would have produced, other things equal, materially higher net earnings. However, unit operating costs since 1939 have increased at an alarming rate, with the result that the benefits of the greater traffic volume have been largely dissipated.

General wage increases were granted railroad employees in 1941, again in 1943, and twice in 1946. These increases, together with the payroll taxes thereon, added about $1,500,000,000 to the annual operating costs of the railroads, based on 1946 operations. In addition, vacations with pay granted to employees added another $75,000,000 to the annual payroll. Further demands for wage increases and changes in working rules were made in 1947.

The non-operating group of railroad employees, represented by 17 unions and covering about 1,000,000 employees, were the first to file demands in 1947, asking in March for a wage increase of 20 cents per hour. This dispute was finally settled by arbitration, under provisions of the Railway Labor Act. The Board of Arbitration, consisting of two railroad representatives, two employee representatives, and two neutrals agreed upon by the parties, handed down its decision Sept. 2, 1947, awarding an increase of 15½ cents per hour to the employee groups involved, effective Sept. 1. The two railroad members of the Board dissented from the decision. This award added $467,400,000 to annual railroad operating costs.

The operating group of employees, represented by five unions and covering about 350,000 railroad workers, filed demands in April 1947 for reconsideration of far-reaching changes in working rules. These same proposals, which involve well over $1,000,000,000 of additional annual costs to the railroads, had been submitted about two years earlier and were disposed of in May 1946 by granting an additional wage increase of 2½ cents per hour. In September 1947, the operating groups also filed demands for wage increases amounting to 30 per cent, with a minimum money increase of $3 in basic daily rates.

On Nov. 14, 1947, an agreement was signed with the two organizations representing conductors and trainmen, granting an increase of 15½ cents per hour in wage rates, retroactive to Nov. 1, 1947, and also granting changes in four minor working rules effective Jan. 1, 1948. Negotiations continued with the brotherhoods representing engineers, firemen, and switchmen, but no agreement was reached by the year's end.

If the same agreement is reached with the three remaining operating brotherhoods as that with conductors and trainmen, the additional payroll and tax cost for the operating group as a whole will be $165,600,000 annually. Combining this with the increase to non-operating employees, the total of the 1947 wage increases, on an annual basis, amounts to $633,000,000. Since 1939, the general wage increases have added about $2,200,000,000 to annual railroad operating costs.

PRICES OF FUEL, MATERIAL, AND SUPPLIES

The increase in wage rates since 1939 exceeded 70 per cent. Even greater relative increases have taken place in unit prices of railroad fuel and other materials and supplies.

In 1939, coal cost the railroads

about $2 per ton; today it costs more than $4 per ton. Fuel oil has likewise more than doubled in the price per barrel, while substantial increases have also taken place in the prices of diesel fuel, gasoline, and electric current.

The index of weighted average unit prices paid by the railroads for fuel, materials, and supplies stood at 131.9 in December 1939, at 208.5 in December 1946, and at 248.1 in December 1947, based on May 1933 as 100. The increase, December 1947 over December 1939, was 88 per cent, and for the single year 1947, 19 per cent.

The rise in prices since 1939 has increased annual railroad operating costs by more than $1,000,000,000. Of that amount, approximately $300,000,000 was in 1947.

PAYROLL TAXES

The Crosser Act became effective Jan. 1, 1947, and raised the rate of payroll taxes paid by the railroads by 2¼ per cent, or from 6½ per cent to 8¾ per cent. The rate in 1939 was 5¾ per cent. Thus, the increase in the rate, 1947 over 1939, added some $120,000,000 to annual railroad operating costs. Table II summarizes the increases in wage rates, prices, and payroll tax rates, 1939 to 1947.

TABLE II

INCREASES IN WAGE RATES, PRICES, AND PAYROLL TAXES

Year	Average Straight Time Rate of Pay (Cents per Hour)	Index of Fuel, Material and Supply Prices* (May 1933 = 100)	Payroll Tax Rate (Per Cent)
1939	74.0	131.9	5.75
1940	74.2	134.1	6.00
1941	76.9	147.0	6.00
1942	83.5	153.8	6.00
1943	89.3	166.2	6.25
1944	93.0	169.6	6.25
1945	93.3	178.2	6.25
1946	111.7	208.5	6.50
1947 (Dec.)	126.0	248.1	8.75

* As of December each year.

Combining the three unit cost factors shown in Table II, the over-all increase in weighted unit costs, December 1947 over 1939, was 76 per cent. The increase, December 1947 over December 1946, was 19 per cent.

FREIGHT RATES

By the beginning of 1947, unit railroad operating costs were approximately 47 per cent above pre-war levels. Against this increase, freight rates were up 17.6 per cent, passenger fares about 9 per cent, express rates about 19 per cent, and there had been no change in mail pay rates. During 1947, unit costs increased further to a level 76 per cent above pre-war. It became necessary, therefore, for the railroads to seek additional increases in rates and fares, which, if granted in full, will raise the weighted average about 48 per cent above pre-war levels.

On July 3, 1947, the railroads filed a petition with the Interstate Commerce Commission seeking authority to increase freight rates on the average by about 17 per cent. On Sept. 5, following the wage increase awarded non-operating employees by the Board of Arbitration, an amended petition was filed raising the freight rate increase sought to an average of 26.6 per cent for the country as a whole. In addition, immediate relief was requested in the form of a 10 per cent interim increase pending final disposition of the main proposal. On Dec. 3, the main petition was further amended raising the proposed increases to 29.2 per cent on the average.

The Commission held hearings in Washington beginning Sept. 9, in Chicago and other cities throughout the country during November, and final hearings in Washington beginning Dec. 8. Oral arguments were concluded on Dec. 20.

On Oct. 6, 1947, the Commission authorized the interim increases sought, a general 10 per cent increase with a maximum of 10 cents per ton on coal, coke, and iron ore. The overall average increase was 8.9 per cent. which became effective Oct. 13. Later, on Dec. 29, 1947, the Commission issued a second interim order, virtually doubling the previous interim increases authorized. These increases, which became effective Jan. 5, 1948, are to remain in effect until June 30, 1948, or such earlier date as they may be superseded by a final order in the case.

The main proposal, as finally amended by the railroads on Dec. 3, seeks an increase of 41 per cent on traffic within and to and from the East and an increase of 31 per cent on traffic within and between the South and the West. On certain commodities, however, specified maxima increases bring the over-all average increase sought down to 29.2 per cent.

The Commission's decision in the Class Rate Case (Docket No. 28300) was upheld by the U. S. Supreme Court in a decision handed down in May 1947. The new class rates, raised 10 per cent in the East and decreased 10 per cent in the South and certain parts of the West, were put into effect Oct. 13, 1947.

PASSENGER FARES

Increases in passenger fares were sought by the railroads in 1947 and were rather promptly authorized by the Interstate Commerce Commission. Unlike the freight rate petition, which was joined by all railroads, a number of passenger fare petitions covering individual roads or groups of roads were filed, and on different dates during the year. Generally speaking, fares in parlor and sleeping cars were increased from 3.3 to 3.5 cents per mile throughout the United States. Coach fares in the East and the South were increased from 2.2 to 2.5 cents per mile. A further increase in coach fares on the New Haven railroad to 2.875 cents per mile was later authorized. Round-trip and special fares throughout the country were generally increased. The Pullman Company was also authorized to file increased tariffs on sleeping accommodations.

EXPRESS RATES

The Railway Express Agency sought two increases in express rates in 1947. The first of these, averaging about 17 per cent, was authorized by the Commission and became effective Oct. 25, 1947. A second increase of 10 per cent was sought following the granting of wage increases to Express Agency employees. The Commission authorized the Agency to file tariffs on first and second class rates as proposed, subject to protest and possible suspension. If not suspended, the new rates will become effective in January 1948.

MAIL PAY

Prior to 1947, mail pay rates had not been increased since 1928, that increase being retroactive to 1925. On Feb. 19, 1947, the railroads filed a petition with the Commission seeking 45 per cent increase in mail pay rates. Railroad evidence in support of the increase sought was submitted in July at hearings before the Commission. At further hearings which began Sept. 30, counsel for the Post Office Department cross-examined the railroad witnesses on testimony submitted at the earlier hearing, but asked for a further extension of time before presenting the Department's case in opposition. This delay led the railroads to seek interim relief, which the Commission granted to the extent of an increase of 25 per cent in mail pay, retroactive to Feb. 19, 1947. No date has been set for further hearings on the full amount of increase sought.

FINANCIAL RESULTS

Railroad net earnings in 1947 showed slight improvement over 1946, but fell considerably short of what may be considered as a fair return on property investment. This is particularly significant when considered in light of the fact that railroad traffic was at a very high level throughout the year.

Total railroad operating revenues in 1947 increased about $1,000,000,000 over 1946, or by 13 per cent, due in part to the greater volume of freight transported and in part to the higher level of rates and fares. Operating expenses and taxes increased by $820,000,000, or 12 per cent.

Net railway operating income, or what is left after paying expenses, taxes, and equipment and joint facility rentals, approximated $763,000,000 for 1947, equivalent to a rate of return on net investment of 3.39 per cent. While this was an increase of $143.000.000 over net railway operating income earned in 1946, it was little more than half that earned in 1942 when a reasonably comparable volume of traffic was handled.

After interest and other fixed charges, net income for 1947 was $465,000,000, an increase of $178.000,000 over 1946, but a decline of $437,000.000 under 1942.

Table III gives the significant income account items for the years 1947, 1946, 1942 and 1929.

TABLE III

RAILROAD REVENUES

	1947* (millions)	1946 (millions)	1942 (millions)	1929 (millions)
Operating revenues	$8,612	$7,628	$7,466	$6,280
Freight	6,992	5,787	5,944	4,826
Passenger	945	1,259	1,028	874
Operating expenses	6,755	6,357	4,601	4,506
Operating ratio—per cent	78.4	83.4	61.6	71.8
Taxes	922	498	1,199	397
Payroll	353	254	171	—
Federal income	285	cr. 16	755	89
Net railway operating income	763	620	1,485	1,252
Rate of return—per cent	3.39	2.75	6.30	5.24
Net income	465	287	902	897

* Partially estimated.

RAILROAD LEGISLATION

While the first session of the 80th Congress enacted little legislation of direct significance to the railroad industry, a number of important bills were considered and will carry over into the second session. Among these may be mentioned: 1. Bulwinkle bill (H.R. 221 and S. 110), designed to stay the operation of anti-trust laws with respect to rate-making procedure and other joint actions approved by the Interstate Commerce Commission; 2. Hawkes-Howell bill (H.R. 3150 and S. 670), to amend the Railroad Unemployment Insurance Act by eliminating the sickness and maternity benefits added by the Crosser Act, and to put unemployment compensation taxes on a sliding-scale basis; 3. Jennings bill (H.R. 1639), to remove from the Employers' Liability Act the special venue provisions permitting actions brought thereunder to be instituted any place where the defendant is doing business; 4. Mahaffie bill (H.R. 2298), to reestablish in modified form the voluntary financial readjustment procedures of the McLaughlin Act which expired Nov. 1, 1945; 5. St. Lawrence Waterway and Power Project (S.J. Res. 111 and H.J. Res. 192), to approve the agreement entered into in 1941 between the United States and Canada for the improvement of the St. Lawrence River for navigation and establishment of hydroelectric power plants; and 6. Reed bill (H.R. 3980), to expedite railroad reorganizations.

COURT ACTION

The Supreme Court decision in May upholding the Commission's order in the class rate case (Docket 28300) has been discussed at an earlier point.

In March 1947, the Supreme Court affirmed the sale of the sleeping car properties of Pullman Incorporated to a group of 57 railroads. The lower court had ordered Pullman to separate its activities with respect to operation of sleeping cars and car construction.

Several interests sought to purchase the sleeping car business and, after hearings, the lower court authorized the sale to the railroad group. That decision was appealed to the Supreme Court.

There was little change during the year in the status of the two pending anti-trust suits against the railroads. In the Georgia case, briefs were filed and oral arguments were completed before the Master appointed by the Supreme Court, but he had not rendered a report by the end of 1947. In the Lincoln case, the Department of Justice filed a number of exhibits, to which the defendants filed objections. A reply to these objections by the Government was received by the court, and there the matter rested at the end of the year.

CONCLUSION

The year 1947 was one of great activity for the railroads. The demands upon them for service were the greatest in peacetime history. Those demands were largely met, but delay in the delivery of new equipment hampered the railroads to some extent in that respect. Somewhat brighter prospects for 1948 in equipment deliveries dispel any doubts that may have existed with regard to the capacity and ability of the railroads to meet the transportation requirements of the post-war economy.

The time-consuming process of raising rate and fare levels to meet new operating costs was very nearly completed by the end of 1947. If reasonable stability in wage rates and prices is attained in 1948 and general business activity remains near present levels, the railroads should experience a fairly prosperous year. However, there are too many uncertainties in the period ahead to permit a sound prediction at this time, but whatever may eventuate, the railroads stand ready, as in the past, to carry their part of the load.

HIGHWAYS

By Thomas H. MacDonald

Commissioner of Public Roads, Federal Works Agency

NATIONAL INTERSTATE HIGHWAY SYSTEM

Designation of a new nationwide system of highways, consisting of the principal routes in the Federal-aid system, was the most important development in the highway field in 1947. The 40,000-mile system, as mapped by the state highway departments, in cooperation with the Public Roads Administration, contains 37,681 miles of the nation's most heavily traveled highways, including 2,882 miles of urban thoroughfares. The remaining 2,319 miles were reserved for urban circumferential and distributing routes which were to be designated later.

The National Interstate Highway System as approved by the Federal Works Administrator consists of north-south, east-west, and diagonal routes that will make it possible to travel by a direct route to all large metropolitan centers throughout the country. The system reaches 42 state capitals and will serve directly 182 of the 199 cities in the country having a population of 50,000 or more. Rural sections of the system comprise only 1.1 per cent of all rural roads but carry 20 per cent of all rural traffic.

In recommending routes for inclusion in the system, state highway departments were governed by provisions of the Federal-aid Highway Act of 1944, which required that "there shall be designated in the continental United States a national system of interstate highways not exceeding 40,000 miles in extent, so located as to connect by routes as direct as practicable the principal metropolitan areas, cities, and industrial centers, to serve the national defense and to connect at suitable border points with routes of continental importance in the Dominion of Canada and the Republic of Mexico."

The Federal-aid Highway Act of 1944 authorized an appropriation of $500,000,000 in each of the first three post-war fiscal years to assist the states in developing a $3,000,000,000 highway program which would include improvements on the existing Federal-aid system, on extensions of the Federal-aid system through urban areas having a population of 5,000 or more, and on a Federal-aid system of secondary or farm-to-market roads in each state.

The sum of $225,000,000 was set aside from the authorized annual appropriation for improvements on highways in the regular Federal-aid system; $125,000,000 was made available for urban sections of the system, including expressways, circumferential and distributing routes; and $150,000,000 was earmarked for state systems of secondary roads.

No specific sum was provided for development of the National Interstate System; however, since the new system is a part of the Federal-aid system, funds made available for rural portions and urban extensions of the Federal-aid system may be expended on routes in the National Interstate System. In most states half of the cost of Federal-aid projects and up to one third of the cost of right-of-way may be financed by the Federal Government. The exceptions are states containing large areas of land in the public domain. In these states a higher rate of Federal participation is permitted.

Although the National Interstate System follows, in general, the main routes in the Federal-aid system, it may be necessary in many instances to relocate existing highways or build alternate routes for express traffic in order to meet essential standards of width, grade, alinement, and control of access.

Design standards recommended for the Interstate System, and endorsed by the American Association of State Highway Officials, call for four-lane divided highways wherever the traffic volume is 800 vehicles in peak hours. For such highways in rural areas, a right-of-way 250 feet wide is desirable. Traffic lanes 12 feet in width are recommended for all heavily traveled routes. Where traffic density exceeds 3,000 vehicles in peak hours, elimination of all cross traffic at grade is advocated. Since large streams of traffic obviously can not move swiftly and safely if obstructed continually by vehicles entering and leaving an express route, control of access to interstate routes in and near large cities is considered essential.

URBAN EXPRESSWAYS

By authorizing a specific appropriation for highways in urban areas having a population of 5,000 or more, Congress recognized the fact that development of a well-integrated system of main highways should include extensive improvements on arterial routes leading into and through large cities where traffic congestion is most serious.

Under the stimulus of Federal assistance, many cities, in cooperation with state highway departments and the Public Roads Administration, made commendable progress during the year in the planning and programing of expressways and other highway improvements designed to speed up the flow of traffic.

In a number of large cities depressed or elevated expressways will be built, making it possible for motorists to reach downtown business districts at an average speed of 35 to 45 miles an hour, without stops for traffic signals and without interference from cross traffic. Depressed sections of expressways will be supplemented by parallel frontage roads for "local" traffic, and bridges will be constructed at intersections to serve cross traffic. Many of the urban expressways will be integral parts of the National Interstate System. At the end of the year, work was under way on expressway projects in or near East Hartford, Conn., New York, Elizabeth, N. J., Pittsburgh, Washington, D. C., Cleveland, Cincinnati, Fort Worth, Dallas, Houston, Los Angeles, San Francisco, Oakland, Calif., and other cities.

PROGRESS OF THE HIGHWAY PROGRAM

Improvement of highways in the primary Federal-aid system progressed at a more rapid rate than in the previous fiscal year, but shortages of materials, particularly structural steel, and high prices continued as impeding factors, and the rate of progress was by no means commensurate with the need for better highway facilities. Only 2,991 miles of roads in the system were completed in the 1947 fiscal year, as compared with 8,709 miles in 1941. Also 4,609 miles of Federal-aid secondary road and 329 miles of miscellaneous construction were completed. Total cost of all completed work, including elimination of hazards at grade crossings, was $212,800,447, of which $122,383,712 was paid from Federal funds.

As the 1947 construction season advanced the highway program was greatly accelerated. The volume of work let to contract during the calendar year, while not as large as in 1941, indicated that road-building activities were approaching pre-war levels. Between Jan. 1 and Nov. 30, contracts were awarded by state highway departments for improvements on 42,422 miles of road, at a total construction cost of $832,033,000. Of this sum, $594,076,000 was for work on highways in the Federal-aid system and road construction financed entirely with Federal funds. The remainder was for work financed by the states and counties without Federal assistance.

The volume of work authorized or under way at the end of the year gave promise that substantial progress will be made in the highway program during 1948.

Of the post-war Federal funds available for the Federal-aid system and assigned to programed projects or those in a more advanced stage in November, 30 per cent had been applied to the National Interstate System. Funds so assigned amounted to $191,226,000 for 2,254 miles of improvement, at a total cost of $376,705,000. It is expected that a larger proportion of Federal-aid funds will be expended upon the Interstate System as conditions in the construction field improve and large projects now in preparation are offered to contractors.

SECONDARY ROADS

The states and counties made excellent progress during 1947 in the development of secondary-road programs and in the selection of additional routes to be included in the Federal-aid secondary system authorized by the Federal-aid Highway Act of 1944, which provided $150,000,000 for this class of road work in each of the first three post-war fiscal years.

The purpose of the legislation was to initiate a more comprehensive rural road program through the selection and improvement of a system of principal secondary or farm-to-market roads in each state to supplement the Federal-aid primary system in rural areas. Together, the two systems will form a closely integrated network of truck routes and "feeder" roads.

Selection of the Federal-aid secondary system by the states, in cooperation with county officials, was begun in the spring of 1945 and continued throughout the calendar year 1946. By the end of the fiscal year 1947, a total of 350,809 miles comprising the most important secondary roads in each state, had been designated for the system, as compared with a total of 217,073 miles at the end of the preceding year.

Additional routes will be added to the system in many states in order to incorporate sufficient mileage to allow adequate latitude in planning current programs and at the same time avoid the omission of any important secondary or "feeder" road. It is believed that these objectives can be reached with a total mileage for the United States of approximately 430,000 miles.

No limit was placed upon the mileage of the secondary road system, but the states were urged to include only such mileage as could be adequately improved within a reasonable period of years and maintained with revenues that may be expected to accrue.

Construction activities on Federal-aid secondary roads during the fiscal year resulted in the completion of improvements on 4,609 miles of roadway, at a total cost of $55,334,860. The Federal Government contributed $28,768,606. The projects included five structures to eliminate railroad grade-crossings, and a number of bridges. At the end of the fiscal year projects were under way or approved for construction on 12,977 miles of road, at a total cost of $270,420,784, of which the Federal Government was to pay $133,535,561.

Greater progress was made on secondary roads during the year than on other classes of highway projects. This may be attributed in part to the fact that both the Public Roads Administration and most of the states placed special emphasis on organizing and launching the secondary road program. Furthermore, the preparation of plans and solution of right-of-way problems are somewhat simpler than for many of the projects on main highways, making it possible to get projects under construction without delay. Too, contractors have shown greater interest in secondary road jobs since smaller quantities of "hard-to-get" materials are required, and generally there is less risk of financial loss than on big jobs.

HIGHWAYS IN NATIONAL FORESTS AND PARKS

Highway construction in national forests and parks, suspended during the war years, was resumed to a limited extent after the war, but improvements completed in 1947 were far below actual needs. Road work in national forests during the fiscal year was restricted almost entirely to roads used in the production of timber, and only minor work was done in the national parks.

Only 107 miles of forest highway were completed, consisting of 23 miles of initial improvement and 84 miles of further improvement of roads constructed in earlier years. At the end of the year, 404 miles were under construction. In the national parks a five-mile project was completed during the year, and 100 miles were under construction at the end of the year.

For these classes of roads there exists a wide gap between important needs and current rate of progress. The Federal-aid and state highway systems cross the great areas reserved as national forests on portions of the forest highway system. These sections of road are essential links in the highway transportation facilities of the country, particularly in the western states. They make available the mineral and timber resources of the national forests, and are used by a large portion of the interstate traffic in mountainous areas of the west. Improvements on national forest and park highways are financed entirely with Federal funds.

The Federal-aid Highway Act of 1944 authorized $25,000,000 for national forest highways, $4,250,000 for highways in national parks, and $10,000,000 for parkways, in each of the first three post-war fiscal years.

To avoid excessive use of materials required for the housing program, the President limited expenditures on forest highways during the year to $12,500,000. Actual appropriations were $13,714,222 for forest highways, $6,000,000 for national park roads, and $11,000,000 for parkways. These amounts, with unexpended balances from previous years, financed the work of the year.

Forest highways were important in the production of timber during the war, and there is definite indication that they will be essential in producing needed lumber for an indefinite period in the future. Of the forest highways contracted for during the year or recently completed, at a total cost of $15,564,000, 95 per cent are useful in the production of timber.

Forest highway improvements, on which work will be started as soon as funds are made available, include 1,459 miles of roadway at a cost of approximately $43,000,000. It is estimated that these roads will penetrate areas capable of yielding an annual timber harvest of 2,436,000,000 board feet, of which 1,913,000,000 board feet would be hauled by highway.

The Public Roads Administration and the National Park Service have undertaken jointly to select a system of roads for each national park and national monument, and to prepare a development program indicating the order of priority in which work will be undertaken as funds become available. Progress was made in this work during the year, but little actual construction was done. Because of limited funds appropriated, only 73 miles of park roads and parkways were awarded to contract, at a cost of $1,807,000.

MOTOR VEHICLE REGISTRATION

With traffic congestion already a serious problem in all metropolitan areas, the large increase in motor vehicle registrations during 1947 emphasized the urgent need for improved highway facilities to accommodate the rapidly swelling flood of traffic flowing over the nation's highways.

The estimated total of motor vehicle registrations in 1947 was expected to reach an all-time high of 37,164,000 by the end of the year, surpassing 1946 registrations by more than 3,218,000 and exceeding registrations in 1941, the previous peak year, by approximately 2,690,000.

The number of passenger cars registered during the year was approximately 30,545,000, as compared with 28,100,188 automobile registrations in 1946 and 29,524,101 in 1941.

The total number of truck registrations during the year was estimated at 6,492,000, an increase of 13.4 per cent over the 1946 total of 5,725,692 registrations, and 33.6 per cent more than 4,859,244 trucks registered in 1941. California, New York, and Pennsylvania led the states in motor vehicle registrations. Movement of vehicles on rural highways was 10 per cent above the pre-war peak.

THE INTER-AMERICAN HIGHWAY

Extending from Laredo, Texas, through Mexico and Central America to Panama City the Inter-American portion of the Pan-American Highway eventually will enable motorists to drive from the United States to South America. At present, however, several sections of the projected route are impassable and other sections can be traveled only in dry seasons.

Extensive improvements have been made on long stretches of the route, particularly in Mexico and Panama, but there are unimproved gaps in southern Mexico, northern Guatemala, Costa Rica, and northern Panama over which motor vehicles can not be driven. Approximately 50 per cent of the 3,300-mile route has been paved, 28 per cent has a surface comparable to low-type secondary roads in this country, and 12 per cent is passable in dry weather, leaving only 9 per cent impassable. Tourists will not be able to travel over the entire length of the highway until provision has been made for closing unimproved gaps.

Construction activities continued during the year on a few sections of the highway, particularly in Mexico and Guatemala, but progress of the work was seriously retarded by lack of funds.

Improvements on portions of the Inter-American Highway traversing Mexico are directed and financed by the Mexican Government. In the six Central American republics the United States Government, through the Public Roads Administration, is cooperating with the various governments in financing and constructing sections of the highway. Under provisions of the Inter-American Highway Act of 1941, the United States is paying two-thirds of the construction cost and is furnishing engineering advice and assistance. Most of the $20,000,000 appropriated for that purpose, however, has been expended or committed to projects already programed.

Practically all construction work on the Inter-American Highway is performed by local labor. A small number of men from the United States are employed in engineering, administrative, and accounting jobs. One of the objectives of participation by the United States is to assist in the development of skilled highway organizations in the Central American countries. Under the present plan, engineers, supervisors, and workmen are obtaining valuable experience in highway construction.

Local improvements have been made on portions of the Pan-American Highway in South America, notably in Bolivia and Ecuador, but the highway as a whole is not yet suitable for tourist travel.

The route extends south from the Panama-Colombia border, traversing Colombia, Ecuador, and Peru, and continuing along the coast to Valparaiso in Chile, then across the Andes to Buenos Aires, a distance of approximately 5,750 miles. A proposed alternate route runs east from Vitor in southern Peru, across the Andes to La Paz, capital of Bolivia, then south to Buenos Aires. From Buenos Aires, the route continues to Montevideo, then swings north to Rio de Janeiro.

THE MOTOR BUS INDUSTRY

By Carl W. Stocks

Editor, *Bus Transportation*

RECORD PRODUCTION OF BUSES AND TRUCKS

New records of production of buses were set in 1947, with 19,000 vehicles, exclusive of 17,000 school buses and 850 trolley buses. It was also indicated that truck production records had been set, with more than 1,500,000 vehicles. New production records were also set in tires at more than 101,000,000, of which 18,000,000 were for trucks and buses. These developments were all heartening as was the continued disposition of the carriers to carry forward their programs of modernization, postponed by the exigencies of the wartime period. In the bus industry the rate of increase of annual expenditures since 1940 has been more than 100 per cent. Even with this tremendous splurge in spending, the industry is still far behind in its program of bringing its plant and equipment up to present day requirements.

THE COST OF OPERATION FACTOR

On the economic side the carrier, like all other business, has been hard hit by increased costs of both labor and materials. These, the city companies, in particular, have sought to offset by seeking fare increases and readjustments. Of 412 cities with a population of more than 25,000, a total of 107 have had fare increases since V-J Day and 16 have had two increases. At the end of the year, at least 50 other cities had applications for increases pending. In respect to passengers carried, the companies have been fortunate since traffic has held up surprisingly well despite the predictions of persons in the industry that it was too much to hope that the inordinate riding of the wartime period would carry over for long in the period of the return to peace time economy. The experts had maintained that the riding total would drop severely immediately after V-J Day; instead, it increased, and 1946 broke the riding record, due largely to the high level of national employment and the continued lack of alternate means of transportation. So far as riding and revenues are concerned, the transit industry continues at nearly the same levels established during the peak years, but the rising cost of operation, due particularly to increased labor costs, is resulting in a substantially lower net for the industry as a whole. For the first time since before the war, however, the normal decline in transit riding during the summer months reappeared, and the industry is entering the period of increasingly active competition from the private automobile. That, in short, was the situation in the local transit industry at the end of the year.

INTERCITY TRAFFIC

In the intercity field, as in the city field, 1948 sets a new high in economic imponderables. Foremost is the continuing squeeze in declining revenues and increasing costs. At the close of the year indications were that the number of passengers carried in 1947 would be a little below the level for 1946, but the more adequate service given required some 5 per cent more bus miles. As in the local transit industry as distinguished from the intercity service, the decline in intercity traffic that was anticipated post-war has been delayed by the unprecedented high level of employment, and the prolonged shortage of private automobiles. Here again, barring unforeseen developments, competition from private automobiles is certain to increase. Factually, new equipment, terminals, and garages, together with better schedules, have added much to the attractiveness of the industry's service. Certainly, these improvements have been an important factor in preventing a more rapid decline in the volume of business than had been predicted by some statisticians and expected by many others in the industry.

GROWTH OF THE INDUSTRY

Speaking statistically, as it were, there are now 164,000 buses and trolley buses in operation and 81,500 common carrier vehicles operated over regularly scheduled routes in city, suburban, and intercity service, carrying 10,000,000,000 passengers annually.

In the six years between 1940 and 1946 the number of common carrier companies increased from 3,480 to 4,360, the number of common carrier buses and trolley buses owned increased from 56,800 to 81,500, the number of passengers carried from 4,719,500,000 to 10,551,000,000, the value of buses built from $98,000,000 to $200,000,000 and the revenue miles operated from 2,067,300,000 to 3,613,100,000.

EXPANSION IN BUS SUBSTITUTION FOR STREET CARS

In the matter of the substitution of buses for street cars the process of attrition, which was brought to a halt during the war, continued during 1947, with the notable supplanting of street cars by buses by the Third Avenue Transit System so that Manhattan has become an all-bus borough. Plans made in other cities for similar substitution are under way notably on the municipal transit system in New York and Chicago in which plans for improvements call for increased use of the bus. Seattle, San Antonio, Rochester, Memphis, Houston, Nashville and Hartford are among the largest cities that have gone either all-bus or all-bus and trolley bus.

THE OUTLOOK

The 1948 outlook for new buses and replacement parts, on the basis of indications at the end of 1947, was generally regarded by the manufacturers as appreciably better than that faced by the industry at the beginning of 1947, but the parts situation was complicated and gave promise of being tight by the scramble of the entire automobile industry for the raw materials to build more and more cars. Despite the imponderables of an economy that has become unusually distorted, the outlook for the carriers in 1948 in many aspects was reasonably reassuring.

COMMUNITY TRANSIT

By GUY C. HECKER

EXECUTIVE MANAGER, AMERICAN TRANSIT ASSOCIATION

SCOPE OF OPERATION

In 1947, the staggering number of almost 23,000,000,000—actually 22,661-000,000—passengers were carried on the buses, trolley cars or coaches, elevated and subway vehicles of the transit industry in the United States. This was a decline of 711,000,000, or 3.04 per cent, from the record-shattering figure of 23,372,000,000 for 1946.

Transit vehicles operated a total of 3,284,000,000 miles, a slight decrease of 0.61 per cent from the 1946 total. However, a small increase occurred in the number of miles of line operated.

REVENUES AND EXPENSES

Survey figures for 1947, based on 10 months actual operation, preliminary figures for November, and estimates for December, show that the industry's revenues were $1,394,900,-000, or $2,200,000 less than in 1946, a decline of 0.16 per cent.

Against this 1947 operating revenue was an operating expense of $1,251,-800,000, or $122,370,000 more than the previous year, a 10.83 per cent rise. Thus, net revenue for 1947 was $143,-100,000 as against $267,670,000 for '46, a startling decline of 46.54 per cent.

During 1947, total payroll costs were $797,000,000, an increase of 11.78 per cent over the $713,000,000 totaled in 1946. In the latter year, these costs were 51.03 per cent of total operating revenue, while in 1947 they were estimated to be 57.14 per cent of total operating revenue.

LABOR

Since V-J Day, the transit industry has closely followed the trend of other industries in granting pattern wage increases of approximately 18 cents to 11 cents, respectively, during 1946 and 1947. Such increases, when granted to workers in other industries, were predicated largely on reductions in take-home pay resulting from post-V-J Day changes in the work-week from six to five days. In the transit industry, however, many workers, particularly operators, have had no corresponding reduction in their work-week. As a result, transit take-home pay increased about 20 per cent from January, 1945 to September, 1947, whereas take-home pay of many employees in manufacturing industries only recently has returned to the January, 1945 level.

In addition to increases in hourly wage rates, many transit employees have received improvements in, or additions to, existing working conditions and benefits, since current union objectives include not only substantial increases in hourly wage rates and important changes in working conditions but much emphasis is placed on pensions, holiday pay, sick leave, and other benefits.

Non-basic wage items (pay for time not actually worked) exist to some extent in all industries but they are particularly numerous in the transit industry. When all collateral payments and benefits paid by a transit company are calculated and related to projective platform of hours, it is not unusual to find the cost ranges from 15 per cent to 30 per cent of the basic hourly wage rate. There are some instances where fringes amount to over 50 per cent of the basic rate.

FARES

As an expected result of the great increases in all costs, more and more companies have been forced to seek relief through increased fares. During 1947, fares in 74 of the 412 U. S. cities with populations of over 25,000 were increased, and six of these cities have already had a second rise during the year.

For the first time in modern transit

history the 10-cent ceiling in local fare rates for a city-wide transit system was broken Nov. 1, 1947 when Cincinnati increased its cash fare to 11 cents. This is particularly significant since this is one of the few cities with a "service-at-cost" franchise. Chicago preceded Cincinnati with a partial break-through of the 10-cent ceiling when the rapid transit lines in that city raised cash fares to 12 cents on May 5, 1946.

The following table shows the number of cities in each population group having fare increases in 1947:

	Total Number of Cities in Each Group (1940 Census)	Number of Cities in which Fares Were Increased in 1947
Over 1,000,000 Population.....	5	2
500,000–1,000,000.	9	3
250,000–500,000...	23	11
100,000–250,000...	55	16
50,000–100,000....	107	19
25,000–50,000.....	213	23
	412	74

Since V-J Day, and including fare increases reported in 1947, 116 cities in these population groups have reported increases, and, based on incomplete reports, there are now pending as of the end of 1947 applications for increases in nearly 50 more communities of over 25,000.

Only two large cities with populations over 250,000 (Dayton, O. and New York City) enter 1948 with a straight five-cent cash fare. In New York, there is a growing realization of the futility of deficit financing of the municipally owned transit system, and the authorities are now in the process of seeking an increase in fare to cover, at least, operating costs.

NEW EQUIPMENT

During 1947, approximately 12,500 new passenger vehicles, including modern streamlined streetcars, trolley coaches, and motor buses, were delivered to local transit companies throughout the nation. Practically all of these vehicles replaced worn-out, war-weary equipment. At the end of 1947, the industry had 92,800 passenger vehicles in operation.

Survey figures also reveal that in the last six years more than 60 per cent of the industry's motor buses have been replaced with new vehicles.

THE RISING COST PROBLEM

Spiraling labor costs and increased operating expenses, when considered together with the recent decline in transit riding, have presented very serious problems. Naturally, the transit industry has not been singled out as the sole victim of rising costs, but this industry is extraordinarily a victim of these circumstances for two reasons:

(1) The proportion of total costs represented by transit labor is extremely high, and increased wage costs cause a horizontal rise in a substantial part of the costs of operation. Not infrequently these costs are retroactive, and upon determination of the amount of a wage change, it is discovered that operations for a period already expired have been conducted

ANNUAL TRANSIT VEHICLE PRODUCTION

	1939–40 Average	1941	1942	1943	1944	1945	1946	1947*
Streetcar	417	462	284	32	284	332	421	700
Rapid Transit..........	83	0	0	0	0	0	0	0
Trolley Coach..........	449	411	336	117	55	161	266	800
Motor Bus.............	3,951	5,600	7,200	1,251	3,807	4,441	6,463	11,000
Total...........	4,900	6,473	7,820	1,400	4,146	4,934	7,150	12,500

* Preliminary estimate.

at a low margin of profit, or in extreme cases, at an actual loss.

(2) These rising costs affect the transit industry in a peculiar manner because of the complexity of the machinery provided for increasing fares to offset higher costs. The latter can not be followed immediately with increased prices. An intermediate step must be consummated with the Public Service Commission or other supervisory authority before a change in rates can become effective. Frequently, this has meant long delays. During the period of such delay, the transit company is forced to operate with inadequate fares, and high costs are necessarily being paid. Reserves are, therefore, being consumed and often equity capital has been deprived of its return.

There is growing evidence that labor is also aware of this constantly acute situation and is prepared to change its previous short-term view to a long-range position, which gives greater recognition to the fact that the industry can not remain in a healthy condition unless a reasonable return on investment is earned. It is hoped that mutual understanding and cooperation will make it possible for management and union labor to work out a satisfactory solution of their common problem.

According to the experts, the riding total should have dropped severely immediately after V-J Day; instead, it increased, and 1946 broke the riding record, owing largely to the high level of national employment and continued lack of alternate means of transportation. Now, transit is entering a period of increasingly active competition from the private automobile, and there may henceforth be a reappearance of the normal decline in transit riding during the summer months.

Topflight management in the industry is of the solid opinion that to assure best possible equipment and carry through other improvements, an adequate future fare must provide sufficient revenue to meet all costs of service, taxes, provision for depreciation, interest charges, and a proper recompense for the capital employed. To the extent that these requirements are met will depend the quality of future service.

1946-1947 TRANSIT TRAFFIC INDEX

(Av. 1936–40 = 100)

	1947 Index (partly estimated)	1946 Index
United States—total.	174.4	179.9
Cities Over 1,000,000. . . .	136.1	138.3
Cities 250,000–1,000,000. .	190.9	198.6
Cities Less Than 250,000.	267.7	270.6

THE MERCHANT MARINE

By John C. Niedermair
Bureau of Ships, Navy Department

GENERAL STATUS OF SHIPBUILDING IN U. S. YARDS

At the semi-annual meeting of the Board of Managers of the American Bureau of Shipping, on July 29th, 1947, it was reported that the production of large merchant vessels of over 2,000 gross tons each by shipyards of the United States during the first six months of 1947 totaled 21 of 146,994 gross tons and of 173,927 deadweight tons, employing 171,950 horsepower of propulsion machinery. All of these vessels were especially designed for specific trade purposes. Included in these totals were seven fully refrigerated cargo ships, five dry cargo ships, two self-unloading bulk carriers, six combination passenger and cargo vessels, and one combination passenger and vehicle carrier. No tankers were completed during the first half of the year but two were scheduled to be finished in the second half.

These new vessels were for operation under the American flag with the exception of two of the dry cargo ships and the two bulk carriers. Most of the new American flag vessels were built with the aid of a government construction-differential subsidy, and in some cases represent adaptations of Maritime Commission designs altered to suit the requirements of specific trade routes.

On order and still to be completed by American shipyards, as of July 1, were 39 large steel merchant vessels of 217,384 gross tons, plus more than 200 miscellaneous commercial craft of over 100,000 gross tons. Included in the latter were ferries, trawlers, towboats, tugs, oil and cargo barges. Of the 39 large vessels on order, 23 were for foreign account. Most of these vessels were completed during the year, leaving little carry-over for 1948.

STATUS OF PRIVATELY OWNED VESSELS

Privately owned American flag vessels, exclusive of the Great Lakes, as of July 1947, totaled only 800 of about 6,000,000 gross tons and 9,000,000 deadweight tons. The corresponding pre-war status of American flag vessels, Jan. 1, 1939, was 1,252 vessels of 7,111,383 gross tons and of 10,600,000 deadweight tons. The average gross tonnage of the pre-war owned ships was 5,600 tons while the current fleet averages 7,500 tons. The average speed has increased from 12 knots to about 14-15 knots. These 800 privately owned ships include 300 tankers of about 2,700,000 gross tons and 500 cargo vessels, with a few passenger ships, of about 3,300,000 gross tons. While a large percentage of the tankers are employed in the domestic trades, only a very small percentage of the cargo ships are likewise utilized. Much of this tonnage is relatively new, consisting mainly of Maritime Commission built vessels.

The privately owned American tanker fleet, as of July 1, 1947, averages about 10 years in age, 13.5 knots in speed, and 14,700 tons in deadweight tonnage. The total gross tonnage of 2,700,000 tons of these 300 vessels is about equal to the pre-war tanker fleet of 2,675,075 tons which included 377 vessels. Thus with 77 units less, an equal tonnage can be moved, and with a greater average speed and carrying capacity more voyages can be accomplished per year and more oil transported than with the pre-war tanker fleet which at that time averaged over 17 years in age. In addition, the Maritime Commission still owned, at that time, about 500 tankers of about 5,000,000 gross tons and 8,000,000 deadweight tons, most of which are war-built, except for a number of obsolete vessels acquired on a trade-in basis when selling new tankers to American operators.

Before the war United States shipping interests owned 723 cargo vessels of 3,331,746 gross tons operated under the American flag. Only 152 of these were utilized in foreign trade, while, as of July 1947, almost 450 were so engaged. In the domestic trades 398 vessels were running in the pre-war period as compared with 50 vessels in July 1947.

Privately owned combination passenger and cargo vessels under the American flag in 1939 totaled 152 of 1,104,562 gross tons, while, as of July 1947, only about 45 vessels of 350,000 gross tons were so engaged. The only vessel now in the trans-Atlantic trade fully complying with United States regulations as a passenger ship is the *America*. This ship may be supplemented later by the 17-year old *Washington*, participating in this trade as a fill-in. The only large liners under the American flag are the Matson trans-Pacific vessels, some of which are now being reconditioned; the three government-owned 20-year old East Coast South-American liners, being rebuilt; the two new P-2 liners soon to be completed for the American President lines, probably replacing the two P-2 transports now being operated; and the two comparatively new C-3 passenger vessels engaged in round the world service.

SHIPBUILDING AND REPAIR

In April 1947 the situation with regard to the shipbuilding of the United States was extremely dark. The report to the Shipbuilders Council of America by H. Gerrish Smith on April 17, 1947 stated that only prompt and effective action by the Federal Government would prevent complete cessation of merchant shipbuilding in the United States within the next 12 months. Not a single ocean-going passenger or cargo vessel would be under construction in a private American shipyard after the first quarter of 1948 and that by the end of 1947 naval shipbuilding will be reduced to seven vessels. It was further stated that at no time in the history of ship construction in this country had the outlook for the industry been as dark as it then appeared. All of the naval construction was in the nature of cleaning up war contracts, and on the larger part of the merchant ship work the design and other technical work was almost wholly completed in April 1947.

The work on which the yard technical staffs were then engaged was mostly on modifications under existing naval contracts based on war experience. The seriousness of the situation was further emphasized by the fact that the shipyard technical staffs, which had been developed and trained over a long period of years, could not continue to be maintained under such conditions. Design and engineering work on new contracts would have to be made available, if these key forces were to be prevented from disintegrating.

Employment in the shipbuilding industry had been largely sustained since the close of the war by repair and conversion work which does not provide opportunity for work by diversified technical personnel which is vital to design and new construction. It was this critical nature of the problems of the shipbuilding and ship repair industry and of the American Merchant Marine that President Truman assigned as the reason for his establishment, in March 1947, of an Advisory Committee on the Merchant Marine. This development was considered to be the principal ray of hope for the industry, and it was felt that the Advisory Committee would find solutions to the problems because it was considered that not only commerce and trade were at stake, with all they mean to the economic welfare of the nation, but the National security, as well, was involved.

The President's committee offered a means to determine authoritatively and convincingly not only the requirements of an adequate American Merchant Marine, but also the minimum building program of both merchant and naval vessels necessary to preserve the shipbuilding and ship repair industry in a condition of availability for quick expansion as an essential factor in national security.

The President's Advisory Committee is composed of the following members: K. T. Keller, president, Chrysler Corporation — Chairman; M. B. Folsam, treasurer, Eastman-Kodak Company — Vice-Chairman; A. W. Robertson, chairman of the board, Westinghouse Elec. Corp.; J. B. Black, president, Pacific Gas and Electric Co.; and Vice Admiral E. L. Cochrane, formerly Chief of the Bureau of Ships, United States Navy, and president of The Society of Naval Architects and Marine Engineers.

Employment in the private yards dropped 146,400 during 1946, reaching 156,100 by the end of December 1946. Approximately half of these employees were employed in ship repairing work and conversion. Hourly earnings in December 1946 were reported at an average of $1.423, the largest of any industry with substantial employment in either the general manufacturing or durable goods field.

SUMMARY OF SHIPBUILDING AND REPAIR

The demand for special purpose river and harbor craft has continued month by month throughout the year. Nearly all of the small yards equipped to turn out this type of steel construction were fully occupied for the past 18 months, May 1946 to November 1947, and conditions appear good for some time in the future. The large ship repair plants and shipbuilding yards have been practically full to capacity with all types of ship repair, alteration, and conversion work. At the present (November 1947) the current project of interest is the taking, from the laid-up status, of the 44 T2-SE-A2 type of turbo-electric-drive oil tankers for use by the Navy Department. This project will add considerably to the work of the repair yards in the way of changes which must be made before the tankers can be returned to service. These tankers are of greater speed and power than the standard T2-SE-A1 type, employing 10,000 shaft horsepower as compared with 7,240 shaft horsepower of the latter tankers. The vessels of over 2,000 gross tons each, completed in 1947 up to Oct. 1 are as follows:

Type	No.	Gross Tons	Deadweight Tons	Horsepower
Cargo	10	61,788	90,456	77,080
Cargo—Refrigerated	7	41,501	40,001	63,800
Cargo—Bulk Carrier	2	9,636	21,483	6,000
Passenger—Auto Ferry	1	4,106	700	4,800
Passenger—Cargo	6	54,199	56,518	53,350
Tanker	1	13,365	27,928	13,400
Totals	27	184,595	237,086	218,430

WAR-BUILT VESSELS SOLD BY THE U.S. MARITIME COMMISSION

The following tabulations (A) and (B) summarize the vessels sold to the various countries of the world, under the terms of the merchant ship sales act of 1946, from Aug. 1, 1946 to Aug. 1, 1947.

REPORT OF THE PRESIDENT'S ADVISORY COMMITTEE ON THE MERCHANT MARINE

The committee referred to in the previous discussions submitted its report to President Truman in November 1947 with recommendations regarding the national requirements for shipping and shipbuilding. The report is a very comprehensive document which discusses in some detail the past, present, and future conditions and requirements of the shipping and shipbuilding industry. The committee recommended a long range shipbuilding program which included the building of 46 passenger-carrying vessels during the period of 1948 to 1951. The spread of the building program is divided into eight vessels to be started in 1948, 10 vessels in 1949, 13 vessels in 1950, and 15 vessels to be started in 1951. It is estimated that the cost of this program will range between $500,000,000 and $600,000,000 or average about $150,000,000 a year.

The committee also discussed the basic national policy and the administration of that policy. The passage of the Merchant Marine Act of 1936 shifted the emphasis away from direct government participation in shipping and towards private ownership and operation. The statement of policy of the act makes this clear. Although under the provisions of the act the Government may build and own ships, such ships are to be operated on a charter basis by commercial companies. Government assistance has been stripped of its disguise as mail-contract payment and is now provided in the form of a direct and open subsidy which is applied both to the construction and to the operation of ships engaged in foreign trade on routes determined to be essential.

ALTERNATIVE BASIC POLICIES

There are three basic operating policies which the United States might

TABLE (A) BY COUNTRIES

Country of/or Owner	Number of Ships	Gross Tons	Deadweight Tons	Horsepower
United States	341	2,531,171	3,777,785	1,898,040
Argentina	21	154,448	216,016	147,200
Belgium	15	115,102	165,556	99,740
Brazil	12	45,676	63,534	20,400
Canada	4	41,205	65,250	28,960
Chile	4	24,856	34,923	26,400
China	18	86,921	127,818	35,400
Columbia	8	30,434	43,188	13,600
Denmark	19	129,344	177,601	71,350
Egypt	2	14,354	4,732	8,800
Finland	2	14,352	21,000	5,000
France	86	625,756	932,307	244,980
Great Britain	183	1,223,799	1,846,087	584,790
Greece	100	712,457	1,044,595	248,400
Honduras	25	173,083	255,757	60,900
India	11	81,600	116,337	68,600
Italy	93	680,363	1,004,463	251,460
Netherlands	72	492,484	703,046	340,490
New Zealand	1	5,158	7,312	4,150
Norway	88	565,133	827,712	295,160
Panama	95	740,256	1,123,139	389,296
Peru	8	34,187	49,792	22,600
Philippines	2	13,422	17,841	8,800
Poland	1	7,612	10,719	9,350
Sweden	5	25,836	36,156	10,100
Turkey	6	18,960	25,627	9,400
Union of South Africa	6	44,382	63,232	27,300
Uruguay	2	20,592	32,586	14,480
Venezuela	1	3,160	3,925	1,400
Grand Totals	1231	8,656,103	12,798,036	4,946,546
Totals—United States	341	2,531,171	3,777,785	1,898,040
Totals—Foreign	890	6,124,932	9,020,251	3,048,506

follow with respect to its merchant marine: (a) Private ownership and private operation (with government assistance and regulation); (b) Government ownership and government operation; (c) Government ownership and private operation. Each of these policies has its advocates. As has been indicated in the foregoing paragraphs, all have been tried to some degree at various times in the past. At the present time parts of the active merchant marine are operating under each.

Preponderantly, the United States fleet is government-owned. The larger part of the tonnage is represented by cargo ships chartered to commercial companies under the terms of the Ship Sales Act, but there are also a number of tank ships and troopers, which, by an extension of emergency war powers, are being operated under agency agreement for government account. Both of these categories are being run primarily to meet the immediate and temporary demands for relief and rehabilitation movements. It is expected that these ships will be retired gradually from service as world conditions become more normal; but, in addition, a number of government-owned vessels are chartered to operators in the Alaskan trade on special terms in order to insure essential service to that territory, and four of the largest passenger-carrying vessels in the American Merchant Marine—the *America, Argentina, Brazil,* and *Uruguay*—are government-owned.

World conditions at some time in the future may make necessary the socialization of all or of a considerable part of the American Merchant Marine. Other nations, notably France, Italy, Brazil, and Argentina, have turned to this device. The Com-

TABLE B—TYPES OF SHIPS SOLD

Type	No. of Ships	Gross Tons	Deadwt. Tons	Recip.	Horsepower		
					Turbine	Turbo Elec.	Diesel
EC2–S–CL—Liberty Cargo	637	4,583,936	6,779,796	1,592,500			
Canadian—Liberty Cargo	1	7,128	10,384	2,500			
EC2–S–AW1—Liberty Collier	23	152,789	253,428	57,500			
VC2–S–AP2—Victory Cargo	61	464,124	647,929		402,600		
VC2–S–AP3—Victory Cargo	39	296,754	416,255		364,650		
C3E—Cargo	1	6,736	9,400		8,800		
C3–S–A2—Cargo	49	388,181	584,252		458,150		
C3–S–A3—Cargo	3	22,443	26,906		26,400		
C2–S–B1—Cargo	56	347,774	488,124		369,600		
C2–(M)—Cargo	2	12,219	17,814				12,316
C2–S–AJ1—Cargo	14	115,532	149,240		92,400		
C2–S–AJ3—Cargo	10	79,861	105,700		66,000		
C2–S–E1—Cargo	4	24,660	43,248		26,400		
C1–A(M)—Cargo	40	215,730	290,798				166,000
C1–A(S)—Cargo	5	25,620	36,715		22,000		
C1–B(S)—Cargo	8	53,688	70,563		35,200		
C1–MT–BU1—Cargo Lumber	4	12,532	19,564				9,600
C1–S–AY1—Transport	2	14,354	4,732		8,800		
C1–M–AV1—Cargo	66	251,224	350,040				112,200
N3–S–A1—Cargo	32	57,484	89,723	41,600			
N3–S–A2—Cargo	13	24,530	36,358	16,900			
T3–S–BZ1—Tanker	1	14,136	23,789		13,400		
T2–SE–A1—Tanker	130	1,333,521	2,128,011			941,200	
T1–M–BT2—Tanker	6	19,110	23,550				8,400
T2—Tanker	3	29,775	47,522		36,000		
T3–S–A1—Tanker	5	50,520	81,340		38,500		
T3–M–AZ1—Tanker	1	11,401	17,575				7,500
Private—Tanker	1	8,071	13,080		9,430		
Navy YF—Lighter Barge	14	32,270	32,200				
Grand Total	1231	8,656,103	12,798,036	1,711,000	1,978,330	941,200	316,016

mittee believes, however, that ultimately the best prospect for a strong progressive United States Merchant Marine lies in one that is to the greatest degree possible privately owned and privately operated; that government assistance should be only to the extent necessary to maintain it at a size which shall have been determined to be the minimum necessary for reasons of security, by placing it on a fair competitive basis in essential foreign trade routes, and by protecting it against discriminatory practices in its domestic services; and that government ownership and charter operation should be reserved only for such cases as may develop where the conditions of the service involved clearly preclude private ownership.

Such a policy must make allowance for the freedom of action, incentive, and initiative required by private enterprise if it is to be able to develop its commercial service and build up business in a highly competitive field, but must provide as well for the regulation necessary to assure that public funds expended are used to promote public interests. It must insure that the people of the United States obtain full value from these funds, in the form of a merchant marine which will guarantee their free access to the markets of the world in times of peace and which will provide the necessary measure of security in time of war. Government assistance must not be perverted to support or foster inefficiency or incompetence, neither must government regulation be so stringent as to hamper the legitimate effort of private enterprise to develop a remunerative business. The adjustment of these factors is indeed one of the most complex and vexing problems involved in the relationship between the Government and the maritime industries today, and is one which will continue to require sound judgment and constant vigilance.

The committee did not feel qualified to attempt to make an independent determination of the size of the merchant fleet or the size of the shipbuilding required for the nation's security. Based on its studies it endeavored to evaluate in the light of the security considerations the various estimates which have been made available to or presented before it concerning the minimum size at which these two national assets should be maintained in the post-war years. The estimates for the size of our active merchant fleet fall within the lower limit of 860 ships of 8,900,000 deadweight tons and the upper limit of 1,325 ships of 13,350,000 deadweight tons given in the report prepared by the Graduate School of Business Administration, Harvard University. The mean of all of these estimates lies slightly above 1,000 ships of between 11,000,000 and 12,000,000 deadweight tons. The Committee believed that under current conditions this mean represents a reasonable minimum size of an active seagoing merchant fleet to meet the country's security requirements, providing that it is kept at a high pitch of efficiency by being composed of fast modern ships; is properly balanced as to type between passenger-carrying vessels, dry-cargo vessels, and tankers; and is backed up by a reserve of inactive ships also balanced as to type and kept in a state of reasonable preservation and readiness.

This belief is given general confirmation by the testimony of the armed services in their appearances before the Committee.

Such a fleet would give employment to upward of 65,000 licensed and unlicensed personnel based upon employment in the industry before the war, and this level appears to assure a minimum nucleus for expansion in time of emergency. The fleet would be approximately as numerous as our pre-war fleet, but the increased size and speed of the vessels which are now either available or projected will give it a carrying capacity between 25 and 50 per cent greater than that of the merchant fleet this country possessed in 1939.

THE RESERVE FLEET

The size and composition of the reserve fleet is a matter which the Committee believes should be determined by the Joint Chiefs of Staff. It is important that this reserve fleet be kept fluid in the sense that, as modern ships are built to replace obsolescent ships in the active fleet, these obsolescent ships should be retired to the reserve fleet where in turn they would displace the least desirable ships which would then be scrapped. From information furnished to the Committee by the Maritime Commission, it appeared that when sales to private interests and foreign countries are completed under the Ship Sales Act of 1946 and when useless overage ships have been scrapped, there will remain from our wartime fleet, which totaled over 5,400 vessels aggregating 57,300,000 deadweight tons, somewhat more than 2,000 ships aggregating over 26,000,000 deadweight tons to which the Government will hold title. These ships are available for lay-up in the reserve fleet.

Since the reserve fleet is to be maintained solely for wartime and emergency use, the Committee believes that it could be placed most appropriately under the administration of the Secretary of Defense.

NATIONAL SECURITY FACTOR

The Committee concurred generally in the findings of the report, "Economic Survey of the American Merchant Marine," prepared in 1937 by the United States Maritime Commission under the direction of Joseph P. Kennedy, then Chairman. The conclusion of that report that the establishment of regular American flag liner service from our ports to the markets of the world is of outstanding benefit to the American importer and exporter because of the improvement in service which results and because of the insurance our own ships provide against interruption of service is as valid as it was in 1937. Similarly, the findings published in the various reports of the Board of Investigation and Research, established under the Transportation Act of 1940 to investigate the relative economy and fitness of the various domestic transportation instrumentalities, are believed to have demonstrated the importance of domestic trade water carriers to our national well-being.

The Committee, however, in its attempt to evaluate the national requirements for shipping and shipbuilding, has chosen to confine itself primarily to the considerations involved in national security, and from this approach the economic justification for a merchant fleet becomes not an end in itself but rather the means whereby a merchant marine of sufficient size to meet the security requirements of an expandable nucleus can best be assured and be maintained with the minimum expenditure of public funds.

Under the most favorable conditions and regardless of the amount of aid furnished by the Government, it will be impossible for the economy of this country to support in time of peace an active merchant marine and an active shipbuilding industry of the size which will be required in the event of a future major war.

It is obvious that the larger and the more efficient the active merchant fleet and the active shipbuilding industry maintained in time of peace are, the better prepared the nation will be in the event of war. The armed services indicate no concern that the merchant fleet may become too large. Both the Army and the Navy representatives in their appearance before the Committee emphasized that the requirements of any future major war for shipping and for shipbuilding will exceed, in volume and in the speed with which they will be needed, the requirements of the Second World War.

Conceivably the United States as the wealthiest and most powerful nation of the world might follow a policy of subsidizing shipping to an extent enabling it to dominate world trade. Such a policy, it is believed, could lead only to the most unfortunate results. Many maritime nations are far more dependent upon shipping than is the United States, and several derive a not inappreciable percentage of their national income from the sale of shipping services. Any attempt on the part of the United States to monopolize a large part of world shipping would result inevitably in retaliatory measures from those nations receiving real or fancied hurts. Trade barriers would be raised against our commerce and we would alienate the other maritime nations of the world. The hostility so engendered could constitute a threat to world peace that would more than offset the advantage of a tremendous merchant fleet.

Numbers of ships alone do not constitute a merchant marine any more than shipways alone constitute a shipbuilding industry. The fleet must be balanced as to types of ships, and these types should be of modern, efficient design. Fortunately, the needs of commercial services are diverse, and when met provide in a large measure for satisfying the varying demands of war. Even more important than the material facilities are the managerial and operating organizations, the technical and design staffs, and the trained and skilled labor employed. Ships and shipyards may be laid up in reserve for future use, but without the competent personnel to bring them into action, they are only of potential value. The problem is to maintain both industries at a size sufficient to meet essential peacetime requirements, to supply initial and immediate emergency demands, and to be capable of rapid expansion.

XIII. MANUFACTURES AND TRANSPORTATION

COMMERCIAL AVIATION

By Andrew F. Haiduck
Fairchild Engine and Airplane Corporation

GENERAL

The year 1947 was again a period of record-breaking peaks in passenger and cargo transportation by the airlines. The only category showing a slight drop was that of air mail which declined less than one per cent. According to figures announced by the Administrator of Civil Aeronautics, the total number of passengers carried by the domestic and international lines increased to 15,700,000, an 18.5 per cent increase over the 1946 total. The domestic lines accounted for approximately 91 per cent of the total passengers carried. With the total of airline planes increasing from 816 in 1946 to 961 at the end of 1947, the average passenger load factor dropped to between 60 and 70 per cent.

Domestic air freight volume increased sharply to 40,702,000 ton-miles, a 111 per cent gain over 1946. International carriers did even better with a 127 per cent increase with a total of 34,253,100 ton-miles for the year.

Domestic air mail declined approximately one per cent to 32,757,300 ton-miles, whereas the international air mail rose 95.9 per cent to a ton-mile total of 15,943,393.

Higher operating expenses resulted in two ten per cent increases in passenger fares, bringing the average cost per mile to approximately 5.5 cents. The principal reasons for higher expenses were reduced load factors, higher wage rates, depreciation charges and fixed charges on funded debts.

At the end of the year, there were 5,850 airports, a 30 per cent increase over the 1946 figure of 4,490. The Federal Aid Airport Program progressed to the construction phase when 127 airport projects had been given financial assistance amounting to $12,966,628.

The number of certificated pilots rose from 400,000 at the end of 1946 to approximately 455,000 at the end of 1947. Private pilot certificates increased nearly 100 per cent, with 125,000 issued. Student pilot permits issued under the stimulus of the GI Bill of Rights increased by 200,000 during the year. The number of registered civil aircraft increased to an estimated 95,000 from the 1946 total of 81,000.

Production of airplanes declined precipitously from a 1946 high of 35,000 to 15,800 in 1947, a reduction of 55 per cent. Failure of the commercial market to develop in the predicted volume resulted in a net loss of $25,000,000 to the aircraft manufacturers after tax carryback. It was apparent at the end of the year that production of personal aircraft would have to be tailored to fit a very much reduced market.

While the number of fatal accidents decreased during the year, the crashes involved the larger 50-place planes and naturally resulted in the deaths of more persons. The fatality rate was estimated as 3.21 per 100,000,000 passenger miles, much higher than the figure of 1.24 for 1946.

Research continued in the direction of guided missiles, jet engines, rocket motors, supersonic speeds, and the application of atomic propulsion for aircraft. The most outstanding event of the year was the penetration of the sonic barrier by the Bell XS-1. For the first time, man has flown at speeds in excess of that of sound.

SCHEDULED AIR TRANSPORTATION MILEAGE

Revenue passenger miles on the domestic airlines were estimated to be 6,284,800,000 in 1947, a five per cent increase over the 1946 figure of approximately 6,000,000,000. The estimated total above is derived from the sum of the actual operations for the first nine months plus an estimate of the last three months' operations. On the same basis, the revenue passenger miles flown by U. S. carriers on international runs totaled 1,890,000,000, a 71 per cent increase over 1946 operations.

Domestic route mileage of scheduled air transport operators rose 30 per cent over the 1946 figure. The mileage for the two years was, respectively, 110,000 and 84,358 miles. The average trip per passenger dropped slightly from 487 miles in 1946 to 476 miles in 1947. International route mileage, however, increased less than two per cent, the statistics being 178,768 miles for 1947 and 175,488 miles in 1946. The stability of the present international networks is apparent when it is recalled that in 1946 the international route miles increased approximately 64 per cent. The average length of a trip in international traffic increased from 1,060 miles to 1,335 miles.

Domestic air freight ton mileage soared to 40,702,000, an increase of 111 per cent, the most outstanding performance of the year. Domestic air express gained 26 per cent, with a total of 30,000,000 ton-miles for the year. The combined ton-miles for air freight and express in international transportation also increased by approximately 127 per cent.

At the end of the year there were 961 aircraft in use on both domestic and international routes, an 18 per cent increase over the 816 in use in 1946; 793 were used in domestic operations and 168 in international operations. Available seat miles increased 28 per cent and 102 per cent, respectively, in the domestic and international operations, with corresponding drops in load factors.

PASSENGERS, SCHEDULES, AND EQUIPMENT

The number of revenue passengers carried during 1947 in both domestic and international operations was 15,700,000, an increase of 18.5 per cent. The phenomenal increases in passenger traffic, developed as a result of the emergency transportation situation during the war, have been more than sustained. Some idea of the magnitude may be obtained by reference to 1940 statistics. In that pre-war year, 3,185,278 passengers were carried on all routes. The operations for 1947 represent almost a 400 per cent increase for this period of eight years.

The revenue passenger load factor in domestic services slid to 64 per cent, compared with 78 per cent the previous year. It is interesting to note that the corresponding figure for 1940 was 59.7. The break-even point for most carriers is usually somewhere between 60 and 65 per cent, and it is quite evident that operations are dangerously close to marginal conditions.

Revenue passenger miles flown in the first nine months of 1947 totaled 4,592,117,000, compared with 4,374,692,537 and 777,716,304 for 1946 and 1940, respectively. The 1947 figure is almost six times that of 1940. An Air Transport Association analysis of domestic airlines operations for the first six months showed a ten per cent increase in revenue passenger miles, whereas Pullman passenger miles declined 45 per cent in the same period. Day coach travel and intercity bus travel also dropped 36 and 4 per cent, respectively.

The short haul 30-place Martin 202 went into operation during the year, as well as the DC-6. The latter was put in use by American Airlines, United Airlines, National and Braniff. With the voluntary grounding of these ships, the only four-engine ships in service were the converted C-54's and the Constellations. It is expected that the speedy DC-6's will be back in operation in the early spring of 1948. All operators have utilized the larger ships, in some cases on through flights, at slight premiums. With the grounding of the DC-6 airplanes, TWA became the only operator with a 300-mile per hour extra fare service from coast to coast. The 40-place Convair Liner is expected to make its debut on the networks some time in 1948.

AIR MAIL

Air mail ton mileage declined less than one per cent below the 1946 level, which was 32,000,000 ton miles. This was the only phase of the air transportation picture which did not wholly sustain its war-inflated volume. It will be recalled that the 1946 volume had dropped 50 per cent below the 1945 figure. However, the present level of activity is still slightly over three times that of 1940. The latest complete statistics available from the Civil Aeronautics Board show mail ton-miles for the fiscal year ended June 30, 1947 as 31,515,740 for the domestic lines and 9,441,318 for U. S. International routes.

The five-cent air mail first instituted in the last quarter of 1946 did not have the stimulating influence that was predicted. However, it may have had the effect of checking the 50 per cent reduction in 1946 operations. At the end of the year, most of the airlines had filed petitions for increased air mail pay boosts, pleading increased operating expenses due to labor, material, and fixed charge increases. Although air mail revenues represent approximately five per cent of the total revenue of the average operator, it is very often the decisive factor between a profit or a loss.

AIR FREIGHT

Air freight ton-miles reached approximately 100,000,000 in 1947, with 60 per cent of the total carried by the independents who were a development of the first post-war year. The biggest independent is Slick, which accounted for 18,000,000 ton-miles in the first ten months of the year. Total domestic air freight volume ran close to 15,000,000 ton-miles a month for the last two months of the year. American Airlines ran second, with 9,370,000 ton-miles for the ten month period. Freight ton-miles flown by the domestic trunk lines were 276 per cent above the 1946 figure for the period from January to August. Actual ton-miles flown for this period in 1947 totaled 17,048,969, whereas the corresponding figure for the previous year was 16,174,885.

Several of the independent operators virtually received recognition as salient factors in the air freight picture. In fact, the phenomenal expansion was virtually forced into existence by their pioneering all cargo efforts. James M. Landis, Chairman of the Civil Aeronautics Authority, commenting on the subject said:

"In December 1946, the volume of cargo carried by air was 1000 per cent more than that carried in January of that year. In 1947 the increase percentage-wise is not likely to be that large, but my guess would be that we will have tripled the amount of cargo carried in 1946. Rates for the carriage of this cargo in a two-year period have dropped from about 40 cents a ton mile to somewhere between 12 and 13 cents a ton mile—a figure that contrasts with 12.6 cents per ton mile for railway express. And this advance has been accomplished without the development of a cargo plane."

Considerable controversy between the uncertificated independents and three airlines led to a rate war in the summer of 1947. A general investigation of the air freight rate picture was ordered by the Civil Aeronautics Board. However, the reduced rates set by American, United, and PCA were sustained, and the argument that airline cargo tariffs are supported by mail subsidies was repudiated by the Civil Aeronautics Board. Finding that the cargo tariffs bear little relationship to the cost of service both in the case of the airlines and the cargo carriers, the Civil Aeronautics Board ordered the investigation in an effort to find some rational principles for rate establishment.

AIR EXPRESS

Air express ton-miles for the period from January to August totaled 18,082,942, a 39.83 per cent increase over the 1946 figure of 12,932,339. United Air Lines, Inc. led during this period, accounting for approximately 23.6 per cent. Transcontinental and Western Air, Inc. and American were second and third, with percentages of 19.4 and 17.2, respectively. All three added up to 60 per cent of the total for all operators. The history of air express has been that of a steady increase in volume each year regardless of economic conditions. Air express, like air freight, is regarded by many of the airline operators as their largest potential increase in revenue from now on.

The establishment in 1947 of Air Cargo, a ground service organization for handling freight and express for the certificated airlines, completed the vital link from door to airplane. Air cargo terminals were established as well as a more completely integrated system for all ground work incidental to air transportation.

FARES, REVENUES, AND EXPENSES

Aside from premium fares, the average fare per mile rose to 5.5 cents as a result of two ten per cent increases made during the year. Gross revenues were approximately 15 per cent above those of 1946 and over twice those of 1944. However, operating expenses increased more steeply, resulting in the worst deficits in airline history. The reduction in passenger load factor to a figure in the vicinity of 65 per cent from the wartime high of over 90 per cent was one of the most important variables in the picture of higher costs. Also contributing to the costs were wage increases, higher material costs, depreciation, and fixed interest charges on debts. The grounding of the DC-6 airplanes rushed some of the operators deeper into the red ink. However, stringent measures were taken to reduce expenses, and by late fall several of the largest operators had increased their operational efficiency to the highest standard since the war. Another factor in the picture was the reduction in volume of traffic in the last two months of the year, when the number of passengers carried dropped below the totals established for these months in 1946.

Several airlines requested upward revision of their air mail payments during the year. The requests were made in conformity with the intent of the Civil Aeronautics Act, which provides for a rate of mail pay adequate for a reasonable profit in the interest of national defense. At the end of the year, an automatic sliding scale method of rate determination was under consideration. A major criticism of the usual method of long hearings before any decision on rates can be made led to the conclusion that the rapidly changing conditions required a more elastic method for rate changing.

SAFETY

Domestic airlines' fatality reached a high of 3.21 per 100,000,000 passenger miles, as contrasted with 1.24 and 2.23 for 1946 and 1945, respectively. While the number of fatal accidents was less in 1947, the fact that larger planes were involved naturally resulted in a larger number of people killed per accident. The international lines did much better, with a rate of 1.08 per 100,000,000 passenger miles. This is particularly laudable in view of the 3.54 figure for 1946 operations. The President's Air Safety Board, at the end of the year, made several recommendations for increased safety in the air.

PRIVATE FLYING

A study by the Civil Aeronautics Administration, released in October, on the subject of private flying revealed that private and non-scheduled commercial aircraft flew 9,800,000 hours within the continental limits of the United States during 1946, more than five times the revenue hours of all the domestic scheduled airlines. Approximately 61 per cent was instructional flying, 17 per cent personal flying, 11 per cent business flying, and 10 per cent hired or other revenue-producing activities. The total volume was more than 2½ times that of 1942.

An average of 183 hours was flown by all private aircraft in the same

DOMESTIC TRUNK LINES—JANUARY–AUGUST 1946 AND 1947 OPERATIONS

Operator	Revenue Miles January–August		Revenue Passengers (unduplicated) January–August		Revenue Passenger-Miles (000) January–August		Express and Freight (tons) January–August	
	1947	1946	1947	1946	1947	1946	1947	1946
American Airlines, Inc.	39,550,540	39,491,686	1,812,431	1,486,933	918,815	782,009	16,971.0	9,813.0
Braniff Airways, Inc.	7,283,295	7,309,420	381,448	331,076	129,720	136,177	1,601.0	1,069.7
Chicago & Southern Air Lines, Inc.	4,678,576	5,272,889	185,866	228,456	72,920	91,165	1,521.0	739.9
Colonial Airlines, Inc.	2,147,073	2,032,489	90,642	101,973	25,199	30,167	186.5	123.2
Continental Air Lines, Inc.	3,393,272	3,583,830	117,461	137,739	39,553	51,033	288.0	177.9
Delta Air Lines, Inc.	7,664,501	6,902,748	328,191	319,233	138,164	132,180	1,667.0	617.0
Eastern Air Lines, Inc.	29,740,148	25,579,894	1,095,100	947,045	579,210	483,662	5,966.7	3,271.9
Inland Air Lines, Inc.	1,480,421	1,335,688	54,292	53,834	18,750	14,901	109.1	52.5
Mid-Continental Airlines, Inc.	4,293,217	3,297,705	175,415	161,274	53,711	49,014	406.1	232.2
National Airlines, Inc.	6,417,634	5,788,552	213,346	180,730	111,590	106,324	769.5	253.1
Northeast Airlines, Inc.	2,734,426	2,498,287	223,592	257,083	42,798	52,321	573.5	258.0
Northwest Airlines, Inc.	11,508,034	11,768,391	439,903	392,212	235,440	240,350	2,472.6	1,164.8
Pennsylvania-Central Airlines Corp.	11,047,244	11,413,444	732,353	864,340	191,050	244,755	8,258.0	3,126.0
Transcontinental & Western Air, Inc.	31,306,013	29,516,291	664,614	642,572	517,170	551,369	7,152.0	6,794.0
United Air Lines, Inc.	38,909,605	35,651,254	1,271,735	1,115,942	786,907	689,728	12,303.0	5,621.4
Western Air Lines, Inc.	5,193,326	5,367,512	309,444	299,423	125,017	117,861	1,368.9	815.3
Total	207,347,325	196,810,080	8,095,833	7,519,865	3,986,014	3,773,016	61,613.9	34,129.9
Index (1946 = 100)	105.35	100.00	107.66	100.00	105.65	100.00	180.53	100.00

Operator	Ton-Miles Flown				Passenger Seat-Miles (000) January–August		Revenue Passenger Load Factor (per cent) January–August	
	Express January–August		Freight January–August					
	1947	1946	1947	1946	1947	1946	1947	1946
American Airlines, Inc.	3,111,986	2,662,223	5,446,698	2,672,857	1,306,261	912,334	70.34	85.72
Braniff Airways, Inc.	517,234	329,148	201,897	116,640	210,659	162,278	61.58	83.92
Chicago & Southern Air Lines, Inc.	421,892	271,714	188,956	1,915	124,357	121,890	58.64	74.79
Colonial Airlines, Inc.	39,710	29,629	0	0	42,314	40,860	59.55	73.83
Continental Air Lines, Inc.	55,912	41,145	69,686	26,114	69,936	74,610	56.56	68.41
Delta Air Lines, Inc.	445,620	292,223	393,892	3,146	217,577	173,926	63.50	76.00
Eastern Air Lines, Inc.	2,454,258	1,881,921	1,041,912	145,503	906,293	576,832	63.91	83.85
Inland Air Lines, Inc.	27,287	11,875	17,164	778	28,818	23,429	65.06	63.60
Mid-Continent Airlines, Inc.	92,685	81,651	42,507	0	86,694	64,682	61.95	75.78
National Airlines, Inc.	251,878	146,598	307,759	0	193,142	130,630	57.78	81.39
Northwest Airlines, Inc.	73,160	44,809	17,274	0	87,081	72,804	49.15	71.87
Northeast Airlines, Inc.	1,109,406	659,458	349,839	0	337,907	275,620	69.68	87.20
Pennsylvania-Central Airlines Corp.	1,400,351	684,890	1,214,306	25,549	366,489	325,463	52.13	75.20
Transcontinental & Western Air, Inc.	3,505,226	2,558,453	2,411,728	1,292,578	780,721	636,772	66.24	86.59
United Air Lines, Inc.	4,282,754	3,011,087	5,073,036	1,811,562	1,025,143	795,408	76.76	86.71
Western Air Lines, Inc.	293,583	225,515	272,315	78,243	194,402	147,790	64.31	79.75
Total	18,082,942	12,932,339	17,048,969	6,174,885	5,977,794	4,535,328	66.68	83.19
Index (1946 = 100)	139.83	100.00	276.10	100.00	131.81	100.00	80.15	100.00

year. Aircraft used in instructional flying ran up an average of 261 hours, against 62 hours for those in personal flying and 68 in business. Those engaged in transportation for hire used 87 hours total, while those in other revenue-producing activities totaled 73 hours.

A survey also revealed that small aircraft—65 HP or less—comprised more than half the plane flying in 1946, and these did about 70 per cent of the flying. Furthermore, 75 per cent of the hours flown by the small planes were for training. In view of the fact that the year saw a distinct trend toward the four-place airplane, it is expected that the distribution for 1947 and 1948 will begin to change quite substantially.

The number of certificated pilots rose from 400,000 at the end of 1946 to an estimated 455,000 at the end of 1947. According to the year-end report of T. P. Wright, an Administrator of Civil Aeronautics, private pilot certificates issued during the year totaled 125,000, an increase of practically 100 per cent over 1946. The GI program was the biggest single reason for the record number of student pilot certificates issued—actually 200,000 for the year. Under this program the Government pays for flight training of ex-servicemen, and the net result has been that the number of pilots and student pilots has passed the half-million mark. Obviously this Federal expenditure has bolstered hundreds of aviation training organizations and associated industries.

A breakdown of the skill and the types of certificates issued for the month of August follows:

Student pilot certificates issued	17,549
Private pilot certificates issued	11,737
Commercial pilot certificates issued	500
Airline transport pilot certificates issued	99
Mechanic certificates issued	921
Ground instruction certificates issued	321
Private instruction rating certificates	647
Instrument rating certificates	130

Registered civil aircraft at the end of the year totaled an estimated 95,000, a 17 per cent increase over the 1946 figure of 81,002.

AIRPORTS AND AIRWAYS

Under the stimulus of the National Airport Program, the number of airports increased from a figure of 4,490 in 1946 to 5,850 at the end of 1947. This program got under way late in the year with 127 projects given final approval, costing $12,966,628. Of the projects approved, six were completed at the end of the year, and the rest were ready for processing into the letting of contracts or actually beginning construction. Of the 127, the majority are smaller airports with only five being modifications and improvements of airline terminals. As of Oct. 1, 1947, there were 5,431 airports in operation, of which 2,633 are commercial, 1,732 municipal, 182 CAA intermediate fields, 557 military fields, and others totaling 327.

Airway safety improvements were hampered considerably by a 55 per cent cut in funds for the establishment of new navigational aids. At the end of the year, this problem, as well as others associated with airline operations, was held in abeyance pending completion of a survey report by the Finletter Committee.

A survey was made in the early fall of a cross-country skyway planned for the use of private flyers. The objective was to establish the best marked skyway in the world from Los Angeles to Washington, D. C. "The air-marked route" skyway will be used solely for contact and will follow terrain best adapted to that type of flying. It will include points where non-scheduled service is most needed and where personal flying is popular. The two 40-mile paths of routes will be liberally dotted with air markers at conspicuous locations established by survey flights. An estimated 5,247 towns and cities along Skyway I routes will benefit by the project.

New air travel rules, designed to further the cause of increased safety, went into effect Oct. 8, 1947. Aircraft will be required to fly higher over buildings in cities and towns than heretofore, and flight within 500 feet of any person, vessel, vehicle, or structure is expressly forbidden.

Some of the rigid rules formerly confined to instrument flying will be part of the cross-country flight rules. Lower operating altitudes were specifically established for helicopters.

AIRCRAFT MANUFACTURE

Aircraft manufacturing was the only phase of commercial aviation that showed a large decline in operations. The production of commercial airplanes dropped to approximately 15,800 units, less than half the total production of 35,000 in 1946. The value of production, however, increased from a figure of approximately $171,000,000 in 1946 to $188,000,000 in 1947 as a result of delivery of larger and more expensive aircraft. The most significant development of the year in personal planes was the emergence of the four-place airplane as the leader in the various types produced during the year. The increased utility of the four-place plane, associated with its ability to cover longer distances in more comfort, made it the leader in the reduced manufacturing operations in 1947. The total number of three and four-place airplanes manufactured in 1947 was 7,415, whereas the two-place airplanes totaled only 6,789. Military airplanes delivered totaled approximately 1,562 units, principally fighter, bomber, and cargo types.

According to the Aircraft Industries Association the approximate loss to the major aircraft manufacturers totaled $100,000,000 before tax carry-back credits. The comparable figure for 1946 was $81,000,000.

The entire industry at the end of the year was awaiting the release of the Finletter report. This survey was made principally to insure a healthy operating condition for all aircraft manufacturing, as well as other phases of aviation. It was expected that the report would point out the need for longer-range programs, the prohibitively high cost of development, and the need for a longer-range program enabling the aircraft manufacturers to keep their skill in engineering and manufacturing available in case of a national emergency.

RESEARCH

Extensive research activities were concentrated to a large extent upon supersonic flight, and the climax was reached when the Bell XS-1 successfully flew through the sonic barrier. It was reported that several penetrations beyond Mach I (speed of sound) were successfully made by NACA test pilots. The importance of these flights can hardly be over-emphasized since they open up the vista of speeds in terms of a 1000 MPH and higher.

Allied activities were associated with the development of jet engines, ram-jets, and other types of jet propulsion power plants. It is quite evident that all future fighters will be of the jet or rocket engine type.

The Robert J. Collier Trophy, awarded each year for the most outstanding engineering performance, was awarded to Lewis A. Robert, NACA flight research engineer, for his development of an aircraft ice-prevention system. The system developed was the culmination of years of research, and it was demonstrated successfully in 1947 that the modern airplane can be flown through the worst icing conditions with safety.

A considerable portion of research effort was devoted to other aspects in the direction of improving the safety of airline operations. Both psychological and design problems pertaining to aircraft operations were the subject of study by the President's Special Board of Inquiry on Air Safety. This Board made several very extensive surveys and submitted recommendations indicating the direction in which research and development should proceed to effect greater safety in airline operations.

High speed aircraft research also included the systematic investigation of the effects of various configurations upon performance. The results and the nature of these tests, in most cases, were classified as confidential information.

A cross-wind landing gear suitable

for operation at single-strip airports was initiated for feeder type planes. Under the CAA's sponsorship, two contracts had already been successfully completed. These were with the Goodyear Aircraft Corporation to convert a Piper Cub and with the Fairchild Personal Plane Division of the Fairchild Engine and Aircraft Corporation. Other developments of the same type of castered wheel gear are proceeding at the Bellanca Aircraft Corporation and All-American Aviation.

PERIODICAL PUBLICATIONS

Aviation
330 West 42nd Street, New York City.
Bus Transportation
330 West 42nd Street, New York City.
Electrical Communication
67 Broad Street, New York City.
Electrical World
330 West 42nd Street, New York City.
Journal of the Aeronautical Sciences
30 Rockefeller Plaza, New York City.
Manufacturers' News
120 South La Salle Street, Chicago.
Manufacturers Record
Candler Bldg., Baltimore, Md.
Marine Age
75 West Street, New York City.
Marine Engineering & Shipping Review
30 Church Street, New York City.
Marine Journal
5 Beekman Street, New York City.
Marine News
26 Water Street, New York City.
Marine Progress
95 Broad Street, New York City.
Mass Transportation
431 South Dearborn Street, Chicago.
National Aeronautics
Willard Hotel, Chicago.
Protectionist
38 Chauncy Street, Boston.
Railway Age
30 Church Street, New York City.
S.A.E. (Journal of the Society of Automotive Engineers)
29 West 39th Street, New York City.
Shipping Digest
16 Bridge Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

MANUFACTURERS

American Assn. of Creamery Butter Manufacturers, 110 N. Franklin St., Chicago, Ill.
American Automobile Assn., Pennsylvania Ave. at 17th St., Washington, D. C.
American Bottlers of Carbonated Beverages, 1128 Sixteenth St., Washington, D. C.
American Brush Manufacturers Assn., 505 Arch St., Philadelphia.
American Hardware Manufacturers Assn., 342 Madison Ave., New York City.
American Institute of Steel Construction, Inc., 101 Park Ave., New York City.
American Iron and Steel Institute, 350 Fifth Ave., New York City.
American Paper and Pulp Assn., 122 E. 42nd St., New York City.
American Petroleum Institute, 50 W. 50th St., New York City.
American Zinc Institute, 60 E. 42nd St., New York City.

Automobile Manufacturers Assn., 366 Madison Ave., New York City.
Mellon Institute of Industrial Research, 4400 Fifth Ave., Pittsburgh, Pa.
National American Wholesale Lumber Assn., 41 E. 42nd St., New York City.
National Assn. of Cotton Manufacturers, 80 Federal St., Boston.
National Assn. of Ice Industries, 1706 L St., N.W., Washington, D. C.
National Assn. of Manufacturers, 14 W. 49th St., New York City.
National Assn. of Wool Manufacturers, 80 Federal St., Boston.
National Electrical Contractors Assn., 420 Lexington Ave., New York City.
National Electrical Manufacturers Assn., 155 E. 44th St., New York City.
National Federation of Textiles Inc., 389 Fifth Ave., New York City.
National Lumber Manufacturers Assn., 1337 Connecticut Ave., Washington, D. C.
National Machine Tool Builders Assn., 10525 Carnegie, Cleveland, O.
National Metal Trades Assn., 60 E. 42nd St., New York City.
Rubber Manufacturers Assn., 444 Madison Ave., New York City.
United States Brewers Assn., 21 E. 40th St., New York City.
United Typothetae of America, Tower Building, 719 Fifteenth St., N.W., Washington, D. C.

TRANSPORTATION AND COMMUNICATION

Aerial League of America, 570 Lexington Ave., New York City.
American Assn. of Railroad Superintendents, 111 Union Station, St. Louis, Mo.
American Railway Engineering Assn., 59 E. Van Buren St., Chicago, Ill.
American Road Buildings Assn., 1319 F Street, N.W., Washington, D. C.
American Steamship Owners Mutual Protection and Indemnity Assn., Inc., 25 Broad St., New York City.
American Transit Assn., 292 Madison Ave., New York City.
Associated Traffic Clubs of America, 105 W. Adams St., Chicago, Ill.
Association of American Railroads, Transportation Building, 17th and H Streets, Washington, D. C.
Cruft Laboratory, Harvard University, Cambridge, Mass.
International Amateur Radio Union, 38 La Salle Rd., West Hartford, Conn.
Maritime Assn. of the Port of New York, 80 Broad St., New York City.
National Aeronautic Assn., 1025 Connecticut Ave., Washington, D. C.
National Council of American Importers, Inc., 45 E. 17th St., New York City.
National Highways Assn., Bass River, Cape Cod, Mass.
National Industrial Traffic League, 1 La Salle Street Bldg., Chicago, Ill.
National Traffic Service Assn., 204 Franklin St., New York City.
North American Export Grain Assn., Inc., 2 Broadway, New York City.
Railroad Owners Assn., 502 Chandler Bldg., Washington, D. C.
Railway Business Assn., 38 S. Dearborn St., Chicago, Ill.
United States Bureau of Standards, Washington, D. C.
United States Naval Research Laboratory, Washington, D. C.

PART FIVE

SOCIAL AIMS AND CONDITONS

DIVISION XIV

POPULATION AND MIGRATION

POPULATION STATISTICS

By Leon E. Truesdell
Chief, Population Division, U. S. Bureau of the Census

POPULATION GROWTH

The population of the United States on July 1, 1947, including persons in military service abroad, was estimated at 144,016,895. This figure represents an increase of 2,778,202, or 1.97 per cent, over the estimate for July 1, 1946. This increase is decidedly the largest recorded for any recent year, exceeding the previous maximum of 1,832,815 established in 1943 by more than 900,000.

These estimates are presented for July 1 each year from 1940 to 1947 in Table 1, together with estimates for each month of 1946. The estimates of population for dates subsequent to the 1940 Census are based on statistics of births, deaths, and net immigration, which are also presented in Table 1. The data for births and deaths have been adjusted for underregistration, and the figures for deaths include deaths of servicemen overseas. The immigration figures represent net arrivals in continental United States, including arrivals from territories and possessions which amounted to about 56,000, mainly from Puerto Rico in the year ending July 1, 1947. The population estimate for July 1, 1947 represents an increase of 12,347,620 over the 1940 census figure. The increase in slightly more than seven years since the 1940 census thus exceeds by more than 3,400,000 the entire increase of 8,894,229 between the censuses of 1930 and 1940.

The chief source of the accelerated rate of population increase has been the wartime and especially the postwar increase in the birth rate. Though the birth rate declined somewhat between 1943 and the early part of 1946, there was a marked increase beginning in July 1946, and the rate has since continued at record levels, as indicated later.

The increase in population between 1946 and 1947 was made up primarily of the excess of births over deaths, which amounted to 2,558,120 though net immigration contributed 230,082, and has contributed around 200,000 for each of the last three fiscal years. Immigration is becoming more important as a source of population growth, as compared even with the earlier years of the postcensal period, though even in 1946-47 it represented only 8.3 per cent of the total population increase.

The figures representing net civilian immigration, as shown in Table 1, result from computations involving arrivals and departures of citizens as well as aliens. The data may be considered in three groups: (1) Alien immigrants and emigrants; (2) alien non-immigrants and non-emigrants, the latter comprising mainly temporary visitors, government officials, and persons in transit; and (3) citizens of the United States. The first group is the smallest, both in gross movement and in net residual. Figures for the whole period from April 1, 1940 to July 1, 1947 are as follows:

Arrivals	3,454,971
Immigrant aliens	442,050
Non-immigrant aliens	1,122,574
Citizens of the United States	1,890,347
Departures	2,439,109
Emigrant aliens	83,145
Non-emigrant aliens	852,342
Citizens of the United States	1,503,622
Excess of arrivals over departures (net immigration)	1,015,862
Immigrant aliens	358,905
Non-immigrant aliens	270,232
Citizens of the United States	386,725

It may be noted that, for the fiscal year 1945-46 (which is the latest for which these details are available), the total of 108,721 immigrant aliens arriving in the United States and its territories and possessions included only 29,095 quota immigrants. The remaining 79,626 non-quota immigrants included 47,679 wives of United States citizens and 29,396 natives of non-quota countries, mainly Canada and Mexico. It is important to keep in mind, especially in considering the probable trend of immigration in the years just ahead, the relatively small fraction represented by quota immigrants in the present total alien immigration, since the allowable quota is nearly 154,000, or more than five times the quota immigration of the year 1945-46.

Estimates of the civilian popula-

TABLE 1

ESTIMATED POPULATION OF CONTINENTAL UNITED STATES INCLUDING ARMED FORCES OVERSEAS: 1940 TO 1947, WITH MONTHLY FIGURES FOR 1946

Date	Estimated Population	Increase Since Preceding Date		Changes in Preceding Period			
		Number	Per Cent	Births[1]	Deaths[1]	Excess of Births Over Deaths	Net Civilian Immigration
Annual:							
July 1, 1947*	144,016,895	2,788,202	1.97	3,987,902	1,429,782	2,558,120	230,082
July 1, 1946	141,228,693	1,643,175	1.18	2,896,523	1,445,019	1,451,504	191,671
July 1, 1945	139,585,518	1,502,069	1.09	2,955,219	1,652,063	1,303,156	198,913
July 1, 1944	138,083,449	1,586,400	1.16	3,016,562	1,556,377	1,460,185	126,215
July 1, 1943	136,497,049	1,832,125	1.36	3,209,177	1,487,068	1,722,109	110,016
July 1, 1942	134,664,924	1,462,051	1.10	2,808,000	1,415,194	1,392,806	69,245
July 1, 1941	133,202,873	1,232,649	0.93	2,628,113	1,454,088	1,174,025	58,624
July 1, 1940	131,970,224	300,949	0.23	623,065	353,212	269,853	31,096
April 1, 1940 (Census)	131,669,275	—	—	—	—	—	—
Monthly:							
Jan. 1, 1947	142,672,762	229,758	0.16	361,412	127,533	233,879	4,121[2]
Dec. 1, 1946	142,443,004	240,556	0.17	349,486	113,730	235,756	4,800
Nov. 1, 1946	142,202,448	269,387	0.19	354,644	113,046	241,598	27,789
Oct. 1, 1946	141,933,061	265,331	0.19	336,373	107,744	228,629	36,702
Sept. 1, 1946	141,667,730	236,779	0.17	320,640	105,769	214,871	21,908
Aug. 1, 1946	141,430,951	202,258	0.14	294,700	110,213	184,487	17,771
July 1, 1946	141,228,693	158,974	0.11	247,869	110,146	137,723	21,251
June 1, 1946	141,069,719	168,935	0.12	246,183	117,469	128,714	40,221
May 1, 1946	140,900,784	149,122	0.11	230,713	116,579	114,134	34,988
April 1, 1946	140,751,662	146,328	0.10	241,643	125,970	115,673	30,655
Mar. 1, 1946	140,605,334	112,572	0.08	221,162	120,823	100,339	12,233
Feb. 1, 1946	140,492,762	99,091	0.07	236,685	143,952	92,733	6,358
Jan. 1, 1946	140,393,671	93,182	0.07	235,096	144,634	90,462	2,720

[1] Estimated total, including adjustment for under-registration.
[2] Net emigration.
* Preliminary figure.

tion, that is, the population excluding persons in the armed forces, are presented for July 1 of each year from 1940 to 1947 in Table 2, together with figures representing the number of persons in the armed forces. These figures show the effect of military inductions on the civilian population, that is, the population from which workers had to be drawn for war production; and then, later, the effect of the rapid demobilization. The net decreases in the civilian population shown for the earlier years in the period covered by the table represent the excess of inductions over natural increase and immigration. The military forces reached their maximum around midyear 1945. Subsequent to this date, which falls in the period between V-E Day and V-J Day, the process of demobilization was very rapid, and mainly through the absorption of ex-servicemen the civilian population increased between July 1, 1945 and July 1, 1946 by 10,942,426, in sharp contrast with the record for the year ending July 1, 1943, during which the civilian population decreased nearly 3,500,000 by reason of the large number of inductions which took place during that year. Between July 1, 1945, and July 1, 1946, the number of persons still in the armed forces decreased to 2,834,219, and still further to 1,373,860 on July 1, 1947, with a little further decrease between that date and the end of 1947.

All of the estimates in Tables 1, 2, and 3 are presented to the last digit as computed instead of being rounded, not because they are assumed to be accurate to the last unit but for convenience in summation.

BIRTH AND DEATH RATES

As already indicated, the recent increase in the birth rate has been the principal factor in the acceleration of the rate of population growth. During the calendar year 1946 there were 3,441,510 births, according to the records of registered births adjusted for under-registration. This number is materially larger than the previous maximum of 3,158,593 recorded for 1943. The number of births which occurred in the second half of 1946 was far greater than the number in the first half (2,017,255 as compared with 1,424,255). In fact, the rates prevailing during the last three months of 1946 were higher than any rates recorded since the beginning of birth registration in 1915. During the first few months of 1947, according to provisional figures, there was a moderate decline in the birth rate, followed by appreciable increases beginning in June.

On the basis of these preliminary figures, it was predicted that the number of births in the calendar year 1947 would exceed 3,900,000, or more than 500,000 above the previous record established in 1946. This record-

TABLE 2

TOTAL AND CIVILIAN POPULATION OF THE UNITED STATES AND NUMBER OF PERSONS IN ARMED FORCES: 1940 TO 1947

Date	Total Population Including Armed Forces Overseas	Civilian Population			Persons in Armed Forces
		Total	Increase (+) or Decrease (−) Since Preceding Date		
			Number	Per Cent	
July 1, 1947.......	144,016,895	142,643,035	+4,248,561	+3.1	1,373,860
July 1, 1946.......	141,228,693	138,394,474	+10,942,426	+8.6	2,834,219
July 1, 1945.......	139,585,518	127,452,048	+915,874	+0.7	12,133,470
July 1, 1944.......	138,083,449	126,536,174	−874,183	−0.7	11,547,275
July 1, 1943.......	136,497,049	127,410,357	−3,464,553	−2.6	9,086,692
July 1, 1942.......	134,664,924	130,874,910	−682,820	−0.5	3,790,014
July 1, 1941.......	133,202,873	131,557,730	−101,556	−0.1	1,645,143
July 1, 1940.......	131,970,224	131,659,286	—	—	310,938

breaking number of births, in turn, doubtless results from the reuniting of families broken by the war and the high post-war marriage rates. The increase in the number of births recorded during the months subsequent to July 1, 1946, followed somewhat similar increases in the number of marriages recorded about a year earlier; and the statistics on marriages (see discussion pp. 593-5) indicate that relatively high birth rates are likely to be continued through at least the major part of 1948.

While the birth rate in recent years has reached very high levels, the death rate has shown no tendency to increase, being in fact appreciably lower in 1946 than ever before and promising, on the basis of preliminary monthly returns, to be at least no greater in 1947.

The trend of birth and death rates since Jan. 1, 1947 is indicated by the provisional returns for the first ten months of 1947, these figures representing specifically registered births without the adjustment for under-registration which was included in the figures quoted in the preceding paragraph. The birth rate for the ten-month period January to October 1947, computed on an annual basis, was 26.2 per 1,000 of the population,

TABLE 3

BIRTHS AND DEATHS IN THE UNITED STATES: 1920 TO 1946

(Registrations for years prior to 1933 are for the current registration area. The birth registration states in 1920 included 59.7 per cent of the total population of the country and the death registration states 80.9 per cent, these areas gradually expanding until complete coverage was attained in 1933)

Year	Births Registered		Deaths Registered		Estimated Totals, Including Adjustment for Under-registration		
	Number of Births	Rate Per 1,000 Pop.	Number of Deaths	Rate Per 1,000 Pop.	Births	Deaths	Excess of Births Over Deaths
1946	3,260,000*	23.3	1,395,617	10.0	3,441,510	1,412,974	2,028,536
1945	2,735,456	19.6	1,401,719	10.6	2,907,126	1,595,924	1,311,202
1944	2,794,800	20.2	1,411,338	10.6	2,969,186	1,580,478	1,388,708
1943	2,934,860	21.5	1,459,544	10.9	3,158,593	1,547,940	1,610,653
1942	2,808,996	20.9	1,385,187	10.4	3,038,434	1,434,277	1,604,157
1941	2,513,427	18.9	1,397,642	10.5	2,717,218	1,443,088	1,274,130
1940	2,360,399	17.9	1,417,269	10.7	2,558,499	1,474,213	1,084,286
1939	2,265,588	17.3	1,387,897	10.6	2,457,254	1,444,222	1,013,032
1938	2,286,962	17.6	1,381,391	10.6	2,483,129	1,438,200	1,044,929
1937	2,203,337	17.1	1,450,427	11.3	2,394,932	1,510,861	884,071
1936	2,144,790	16.7	1,479,228	11.6	2,333,830	1,541,665	792,165
1935	2,155,105	16.9	1,392,752	10.9	2,347,609	1,452,296	895,313
1934	2,167,636	17.2	1,396,903	11.1	2,366,415	1,458,145	908,270
1933	2,081,232	16.6	1,342,106	10.7	2,274,570	1,401,677	872,893
1932	2,074,042	17.4	1,293,269	10.9	2,382,932	1,419,018	963,914
1931	2,112,760	18.0	1,307,273	11.1	2,443,593	1,434,396	1,009,197
1930	2,203,958	18.9	1,327,240	11.3	2,551,535	1,457,113	1,094,422
1929	2,169,920	18.8	1,369,757	11.9	2,525,000	1,494,000	1,031,000
1928	2,233,149	19.7	1,361,987	12.0	2,612,000	1,492,000	1,120,000
1927	2,137,836	20.5	1,211,627	11.3	2,733,000	1,398,000	1,335,000
1926	1,856,068	20.5	1,257,256	12.1	2,767,000	1,480,000	1,287,000
1925	1,878,880	21.3	1,191,809	11.7	2,829,000	1,411,000	1,418,000
1924	1,930,614	22.2	1,151,076	11.6	2,893,000	1,376,000	1,517,000
1923	1,792,646	22.1	1,174,065	12.1	2,824,000	1,408,000	1,416,000
1922	1,774,911	22.3	1,083,952	11.7	2,792,000	1,333,000	1,459,000
1921	1,714,261	24.2	1,009,673	11.5	2,956,000	1,300,000	1,656,000
1920	1,508,874	23.7	1,118,070	13.0	2,851,000	1,442,000	1,409,000

* Provisional figure.

as compared with a rate of 22.1 for the first ten months of 1946. This comparison somewhat understates the change between 1946 and 1947, since the last two months of 1946 carried rates far higher than those for the earlier part of the year. The death rate for the first ten months in 1947 was 10, or very slightly more than the rate of 9.9 recorded for the same period in 1946.

The long-term data on births and deaths are summarized in Table 3, which gives for each year from 1920 to 1946 the number of registered births and deaths as recorded by the National Office of Vital Statistics of the United States Public Health Service, the annual rates per thousand of the population, based on registered data, and estimated totals including both adjustments for under-registration and, for years prior to 1933, estimates for non-registration states; and in the final column the excess of births over deaths, frequently termed the natural increase.

POPULATION BY STATES

Estimates of the population, excluding persons in military service overseas, have been made by states for July 1 of each year since 1940. These estimates are based partly on the projection forward of the 1943 estimates of civilian population based on ration book registrations and partly on current local data. In the estimates for July 1, 1947, which are presented in Table 4, some use was made also of the results of a sample population survey made in April, 1947.

By and large, the increases represented by the estimates for July 1, 1947 indicate that the changes brought about by the concentration of war production effort in certain areas had been maintained up to that date. The increase from 1940 to 1947 in the population, excluding military overseas, for the United States as a whole was 8.9 per cent. Eighteen states and the District of Columbia show rates of increase higher than this, while 11 states show actual decreases. These 11 states are for the most part in the dust-bowl area, which had lost population even before 1940, though the list includes also West Virginia, Kentucky, Alabama, and Mississippi.

The highest rates of increase are shown for certain of the far western states. East of the Mississippi, the District of Columbia, Florida, Maryland, Michigan, and Connecticut are the only areas showing an increase in excess of 15 per cent.

The changes which have occurred since 1940 in the distribution of the population by states will doubtless have an appreciable effect on apportionment in Congress, unless there should be extensive changes in reverse direction between now and the time of the decennial census in 1950. Informal computations based on the 1947 estimates indicate the following changes in apportionment: California would gain seven representatives; Michigan, two; and Florida, Indiana, Maryland, Oregon, and Washington would each gain one. On the other hand, New York would lose three representatives, Pennsylvania, two, and Arkansas, Illinois, Kentucky, Mississippi, Missouri, New Jersey, North Carolina, Oklahoma, and Tennessee would each lose one.

MARRIAGES

The most satisfactory current index of the trend in marriages in the United States is found in a series of monthly releases representing the number of marriage licenses issued in cities of 100,000 or more which is published (usually within 30 days of the end of the month to which the figures relate) by the National Office of Vital Statistics. The cities represented in this series contain about one-third of the population of the country, and, while increases and decreases in the number of marriages in the United States as a whole have not always followed exactly the same pattern as the figures for those cities, the trends are close enough to make the city data a fairly safe basis for forecasting the national figures, which do not become available until some

TABLE 4

POPULATION OF THE UNITED STATES EXCLUDING ARMED FORCES OVERSEAS, BY STATES, 1947 AND 1940

Division and State	July 1, 1947 Provisional Estimate	April 1, 1940 (Census)	Per Cent Change
United States	143,382,000	131,669,275	+8.9
NEW ENGLAND:			
Maine	911,000	847,226	+7.5
New Hampshire	547,000	491,524	+11.3
Vermont	364,000	359,231	+1.3
Massachusetts	4,725,000	4,316,721	+9.5
Rhode Island	761,000	713,346	+6.7
Connecticut	2,020,000	1,709,242	+18.2
MIDDLE ATLANTIC:			
New York	14,092,000	13,479,142	+4.5
New Jersey	4,435,000	4,160,165	+6.6
Pennsylvania	10,281,000	9,900,180	+3.8
EAST NORTH CENTRAL:			
Ohio	7,773,000	6,907,612	+12.5
Indiana	3,858,000	3,427,796	+12.6
Illinois	8,221,000	7,897,241	+4.1
Michigan	6,249,000	5,256,106	+18.9
Wisconsin	3,283,000	3,137,587	+4.6
WEST NORTH CENTRAL:			
Minnesota	2,897,000	2,792,300	+3.7
Iowa	2,606,000	2,538,268	+2.7
Missouri	3,854,000	3,784,664	+1.8
North Dakota	552,000	641,935	−14.0
South Dakota	564,000	642,961	−12.3
Nebraska	1,301,000	1,315,834	−1.1
Kansas	1,914,000	1,801,028	+6.3
SOUTH ATLANTIC:			
Delaware	293,000	266,505	+9.9
Maryland	2,215,000	1,821,244	+21.6
District of Columbia	861,000	663,091	+29.8
Virginia	3,019,000	2,677,773	+12.7
West Virginia	1,849,000	1,901,974	−2.8
North Carolina	3,718,000	3,571,623	+4.1
South Carolina	1,918,000	1,899,804	+1.0
Georgia	3,233,000	3,123,723	+3.5
Florida	2,394,000	1,897,414	+26.2
EAST SOUTH CENTRAL:			
Kentucky	2,777,000	2,845,627	−2.4
Tennessee	3,079,000	2,915,841	+5.6
Alabama	2,824,000	2,832,961	−0.3
Mississippi	2,092,000	2,183,796	−4.2
WEST SOUTH CENTRAL:			
Arkansas	1,903,000	1,949,387	−2.4
Louisiana	2,549,000	2,363,880	+7.8
Oklahoma	2,311,000	2,336,434	−1.1
Texas	7,118,000	6,414,824	+11.0
MOUNTAIN:			
Montana	494,000	559,456	−11.7
Idaho	488,000	524,873	−7.0
Wyoming	275,000	250,742	+9.7
Colorado	1,159,000	1,123,296	+3.2
New Mexico	550,000	531,818	+3.4
Arizona	657,000	499,261	+31.6
Utah	637,000	550,310	+15.8
Nevada	140,000	110,247	+27.0
PACIFIC:			
Washington	2,233,000	1,736,191	+28.6
Oregon	1,517,000	1,089,684	+39.2
California	9,876,000	6,907,387	+43.0

months later. The marriage license data for these cities are presented in Table 5 for 1947 and 1946 by months.

TABLE 5

MARRIAGE LICENSES ISSUED IN CITIES OF 100,000 OR MORE, BY MONTHS: 1947 AND 1946

Month	1947	1946	Increase Per Cent
Total for year	—	769,249	—
11 months, Jan. to Nov.	626,152	716,668	−12.6
December	—	52,581	—
November	51,393	60,176	−14.6
October	54,593	61,093	−10.6
September	61,178	64,211	−4.7
August	64,828	74,632	−13.1
July	52,499	59,083	−11.1
June	80,339	86,302	−6.9
May	64,438	74,026	−13.0
April	55,261	63,694	−13.2
March	46,110	51,147	−9.8
February	43,342	59,809	−27.5
January	52,171	62,495	−16.5

The increase from an average of 47,441 marriage licenses per month in 1945 to an average of 64,104 per month in 1946 affords a measure of the tremendous increase in the number of marriages immediately following the war, though marked increases were in evidence in the last two or three months of 1945. The average number of marriage licenses issued in these cities during the first 11 months of 1947 was only 56,922, representing a very considerable decrease as compared with 1946 but still about 20 per cent above the average for 1945. Individual months from October 1945 to September 1946 show increases over the same month a year earlier ranging from about 20 per cent to more than 60 per cent. The last month to show an increase on this basis was November 1946, with an increase of 8.1 per cent. Beginning with December 1946, the monthly figures indicate decreases averaging 12 or 13 per cent as compared with the same month a year earlier, though for every month the 1947 figure is much higher than the average for the five years 1941 to 1945.

The number of marriages performed in the United States increased rather gradually from 1,331,000, or 10.3 per 1,000 of the population, in 1938, to a record figure of 1,772,000, or 13.2 per 1,000 of the population, in 1942, ranged slightly lower for the next three years, but then, following the pattern of the changes just discussed in connection with the figures for the larger cities, attained an all-time record figure of 2,286,000, or 16.2 per 1,000 of the population in 1946. At this writing (January 1948), complete reports for the United States are not yet available, but it is estimated (unofficially) that the 1947 total will be in the neighborhood of 2,000,000, and the rate around 14. Marriage data for the United States from 1937 to 1947 are presented in Table 6, together with parallel figures for divorces.

The number of divorces has increased in recent years even more rapidly than the number of marriages, namely, from 244,000 in 1938 to 613,000 in 1946. The number of divorces per 100 marriages taking place in the same year increased from 16.5 in 1940 to 30.8 in 1945 and 26.8 in 1946, the 1946 figure being somewhat lower than the rate for 1945 in spite of the rather large increase in the actual number of divorces, because of an even larger increase in the number of marriages.

POPULATION BY AGE AND SEX

The general trend of the population toward an age distribution in which the older ages represent a larger and larger proportion of the total has been modified in the years subsequent to 1940 by the unexpectedly large numbers of births which have taken place in the war and post-war years. The population under five years of age increased from 10,542,000 in 1940 to 13,417,000 on July 1, 1946, a gain of 2,875,000 or 27.3 per cent, as compared with a gain of only 7.3 per cent in the population as a whole. As a result, this group represented 9.5 per cent of the total population in 1946, as compared with 8 per cent at the

TABLE 6

MARRIAGES AND DIVORCES IN THE UNITED STATES: 1937 TO 1947

(Figures are estimates, except for the years 1937 to 1940)

Year	Marriages		Divorces	
	Number	Per 1,000 Population	Number	Per 100 Marriages
1947*	2,000,000	13.9	—	—
1946	2,286,000	16.2	613,000	26.8
1945	1,603,000	11.5	494,000	30.8
1944	1,452,000	10.5	400,000	27.5
1943	1,577,000	11.6	359,000	22.8
1942	1,772,000	13.2	321,000	18.1
1941	1,696,000	12.7	293,000	17.3
1940	1,596,000	12.1	264,000	16.5
1939	1,404,000	10.7	251,000	17.9
1938	1,331,000	10.3	244,000	18.3
1937	1,451,000	11.3	249,000	17.2

* Preliminary unofficial estimate, based on percentage of increase in licenses issued in cities of 100,000 or more.

time of the census in 1940. A later estimate, based on a sample survey made in April 1947, indicates a further and even more rapid increase between 1946 and 1947, amounting to more than 900,000, which brings the percentage of total up to 10.

On the other hand, the age groups 10 to 14 and 15 to 19 years, showed substantial losses between the census date and July 1946, mainly as a result of the decline in the birth rate through the late 20's and early 30's. These two groups together represented only 15.6 per cent of the population in 1946, as compared with 18.3 per cent in 1940.

The population at the upper end of the age scale continued to increase at a rate two or three times that of the total population, persons 65 years old and over forming 7.3 per cent of the population in 1946 as compared with 6.9 per cent in 1940.

As a consequence of the continued high rates of increase for the older age groups, the median age of the population continued to rise in spite of the unusual gains in the numbers of persons under 10. The median age, that is, the age which divides the population into two equal groups, one-half being under and one-half being older than the median, was 29.9 in 1946 as compared with 29 in 1940. The sample inquiry for April 1947 indicated a further increase to 30 on that date.

The 1946 estimates for the total population classified by age and sex are presented in Table 7 with 1940 figures for comparison.

In 1910 there were 2,692,288 more males than females in the population of the United States, the sex ratio, that is, the number of males per 100 females, being 106. This excess of males, which resulted largely from the heavy immigration during the years just preceding 1910, has been gradually declining until, about October 1945, the number of females "caught up" with the number of males. The number of females has gone on increasing until, in 1946, it exceeded the number of males by about 470,000, and the sex ratio was only 99.3. This low ratio came about partly because of military losses and partly because of the continued higher death rate for males than for females at equivalent ages. Since there is reason to believe that the gap between male and female mortality rates will narrow in the future, the sex ratio is not expected to fall much further before beginning a gradual rise, though it is not expected that there will again be an excess of males in the population. By way of caution

TABLE 7

POPULATION, INCLUDING MILITARY OVERSEAS, BY AGE AND SEX, 1946, WITH TOTAL FOR 1940

Age	Population, July 1, 1946			Population, April 1, 1940	Per Cent Increase, 1940–46[1]	Per Cent Distribution	
	Total	Male	Female			1946	1940
All ages......	141,228,693	70,379,823	70,848,870	131,669,275	7.3	100.0	100.0
Under 5 years.....	13,416,573	6,840,299	6,576,274	10,541,524	27.3	9.5	8.0
5 to 9 years.....	11,633,281	5,922,262	5,711,019	10,684,622	8.9	8.2	8.1
10 to 14 years.....	10,622,640	5,390,317	5,232,323	11,745,935	−9.6	7.5	8.9
15 to 19 years.....	11,481,333	5,814,166	5,667,167	12,333,523	−6.9	8.1	9.4
20 to 24 years.....	12,153,853	6,028,057	6,125,796	11,587,835	4.9	8.6	8.8
25 to 29 years.....	11,608,542	5,652,476	5,956,066	11,096,638	4.6	8.2	8.4
30 to 34 years.....	11,088,539	5,402,604	5,685,935	10,242,388	8.3	7.9	7.8
35 to 39 years.....	10,305,704	5,077,526	5,228,178	9,545,377	8.0	7.3	7.2
40 to 44 years.....	9,524,372	4,713,344	4,811,028	8,787,843	8.4	6.7	6.7
45 to 49 years.....	8,657,561	4,312,869	4,344,692	8,255,225	4.9	6.1	6.3
50 to 54 years.....	7,956,342	3,995,457	3,960,885	7,256,846	9.6	5.6	5.5
55 to 59 years.....	6,939,589	3,514,960	3,424,629	5,843,865	18.7	4.9	4.4
60 to 64 years.....	5,468,079	2,753,727	2,714,352	4,728,340	15.6	3.9	3.6
65 to 69 years.....	4,149,806	2,042,850	2,106,956	3,806,657	9.0	2.9	2.9
70 to 74 years.....	3,026,402	1,448,677	1,577,725	2,569,532	17.8	2.1	2.0
75 years and over..	3,196,077	1,470,232	1,725,845	2,643,125	20.9	2.3	2.0
Median age (years)	29.9	29.6	30.1	29.0	—	—	—

[1] Minus sign (−) denotes decrease.

it may be noted, however, that the present and prospective excess of females is utterly too small to have any perceptible effect on the marriage prospects of women in the population.

MARITAL STATUS

Figures indicating the distribution of the civilian population by marital status, based on a sample survey made in April 1947, are presented in Table 8, with 1940 census data for comparison. In comparing figures for males and females as presented in this table one should keep in mind the fact that there are still more than 1,200,000 men, largely single, in military service.

The effect of the increased number of marriages which have taken place in recent years is definitely shown in these figures, the percentage married for females 14 and over having increased from 59.5 in 1940 to 64.2 in 1947. The corresponding increase for males, from 59.7 to 66.2 per cent, is somewhat exaggerated by the absence of considerable numbers of single males from the civilian population. The numbers of divorced persons, both male and female, increased at a much more rapid rate than the numbers of those married, though the actual figures involved were relatively small.

EMPLOYMENT

On the basis of reports obtained each month from a representative sample of about 25,000 households in various parts of the country, there have been published every month, since March 1940, estimates of the number of persons in the civilian labor force, the number employed, and the number unemployed. These figures are summarized month by month or for quarterly intervals from July 1945 to December 1947, in Table 9.

The effects of the rapid demobilization of the armed forces following midyear 1945 appear in the increase of more than 10,000,000 in the civilian population between July 1945 and July 1946. The increase in the civilian labor force fell far short of this figure, partly because of withdrawal

TABLE 8

CIVILIAN POPULATION BY SEX AND MARITAL STATUS: 1947 AND 1940

Age and Marital Status	Male			Female		
	1947	1940	Per Cent Increase[1]	1947	1940	Per Cent Increase[1]
Persons 14 and over	52,350,000	50,553,748	3.6	54,806,000	50,549,176	8.4
Single	14,760,000	17,593,379	−16.1	12,078,000	13,935,866	−13.3
Married	34,638,000	30,192,334	14.7	35,212,000	30,090,488	17.0
Spouse present	33,389,000	28,657,820	16.5	33,458,000	28,516,937	17.3
Spouse absent	1,249,000	1,534,514	−18.6	1,754,000	1,573,551	11.5
Widowed	2,134,000	2,143,612	−0.4	6,376,000	5,700,202	11.9
Divorced	818,000	624,423	31.0	1,140,000	822,620	38.6
Per cent	100.0	100.0	—	100.0	100.0	—
Single	28.2	34.8	—	22.0	27.6	—
Married	66.2	59.7	—	64.2	59.5	—
Spouse present	63.8	56.7	—	61.0	56.4	—
Spouse absent	2.4	3.0	—	3.2	3.1	—
Widowed	4.1	4.2	—	11.6	11.3	—
Divorced	1.6	1.2	—	2.1	1.6	—
All ages	70,128,000	66,061,592	6.2	71,933,000	65,607,683	9.6

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[1] Minus sign (—) denotes decrease.

from the labor market on the part of large numbers of women and some students and elderly men who had been employed in the war industries, and partly because many ex-service men did not get into the labor market immediately on discharge.

The civilian labor force reached the high point of 62,664,000 in July 1947, at which time more than 60,000,000 were employed. The normal seasonal decline in agriculture brought these totals down by about 3,000,000 during the second half of the year until, in

TABLE 9

ESTIMATES OF EMPLOYMENT STATUS OF THE CIVILIAN POPULATION OF THE UNITED STATES: 1945 TO 1947

Date	Civilian Non-Institutional Population 14 Years Old and Over	Civilian Labor Force		Employed	Unemployed	
		Number	Per Cent of Population		Number	Per Cent of Labor Force
December 1947	106,637,000	59,590,000	55.9	57,947,000	1,643,000	2.8
November 1947	106,545,000	60,216,000	56.5	58,595,000	1,621,000	2.7
October 1947	106,428,000	60,892,000	57.2	59,204,000	1,687,000	2.8
September 1947	106,329,000	60,784,000	57.2	58,872,000	1,912,000	3.1
August 1947	106,238,000	61,665,000	58.0	59,569,000	2,096,000	3.4
July 1947	106,133,000	62,664,000	59.0	60,079,000	2,584,000	4.1
April 1947	105,730,000	59,120,000	55.9	56,700,000	2,420,000	4.1
January 1947	105,250,000	57,790,000	54.9	55,390,000	2,400,000	4.2
October 1946	104,590,000	58,990,000	56.4	57,030,000	1,960,000	3.3
July 1946	103,650,000	60,110,000	58.0	57,840,000	2,270,000	3.8
April 1946	102,290,000	56,450,000	55.2	54,120,000	2,330,000	4.1
January 1946	99,780,000	53,320,000	53.4	51,020,000	2,300,000	4.3
October 1945	95,040,000	53,170,000	55.9	51,610,000	1,560,000	2.9
July 1945	93,290,000	55,350,000	59.3	54,400,000	950,000	1.7

December 1947, there were 59,590,000 in the civilian labor force and 57,947,000 employed.

The number of unemployed has fluctuated around 2,000,000 during the post-war period, the number returned as unemployed in December 1947 being 1,643,000, or 2.8 per cent of the labor force. This figure was about the same as in November, but about 500,000 below the level of December 1946. Even in December, however, which represents approximately the bottom of the seasonal cycle, the whole number of persons in the labor force, including persons in the armed forces, was estimated at 60,870,000, or about 500,000 higher than in December 1946.

Because most of the seasonal variation in employment takes place in connection with agriculture, figures are presented in Table 10 showing separately, for 1947, by months, civilian employment in agriculture and in non-agricultural industries. These figures indicate an almost continuous increase in the number of persons employed in industries other than agriculture, the total increasing from 48,890,000 in January to 50,985,000 in December. The number of persons employed in agriculture, however, increased from 6,500,000 in January 1947 to a maximum of 10,377,000 in June, with only a slight decline in July and then a gradual falling off from month to month to a figure of 6,962,000 in December.

With the continuing expansion of non-agricultural industries during the year, civilian employment reached record high levels in 1947. The average number of persons employed in civilian work during 1947 was about 58,000,000, of whom about 49,750,000 on the average were employed in non-agricultural industries and 8,250,000 in agriculture. Non-agricultural employment was about 2,750,000 above the 1946 average, while agricultural employment remained about the same.

Non-agricultural employment, which passed the 50,000,000 mark for the first time during the last half of 1947, was well above the wartime peak and about 30 per cent higher than the 1940 pre-war average. The number of women employed in non-agricultural industries, however, was about 2,000,000 less than in 1944.

TABLE 10

CIVILIAN EMPLOYMENT IN AGRICULTURE AND IN NON-AGRICULTURAL INDUSTRIES, BY MONTHS: 1947

Month	Total Employed	In Non-Agricultural Industries	In Agriculture	
			Number	Per Cent
December	57,947,000	50,985,000	6,962,000	12.0
November	58,595,000	50,609,000	7,985,000	13.6
October	59,204,000	50,583,000	8,622,000	14.6
September	58,872,000	50,145,000	8,727,000	14.8
August	59,569,000	50,594,000	8,975,000	15.1
July	60,079,000	50,013,000	10,066,000	16.8
June	60,055,000	49,678,000	10,377,000	17.3
May	58,330,000	49,370,000	8,960,000	15.4
April	56,700,000	48,840,000	7,860,000	13.9
March	56,060,000	48,820,000	7,240,000	12.9
February	55,520,000	48,600,000	6,920,000	12.5
January	55,390,000	48,890,000	6,500,000	11.7

AMERICAN INDIAN AFFAIRS

By D'Arcy McNickle
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GENERAL

The year 1947 was a critical one for the Indians of the United States. The population continued to increase at a rate exceeding the rate for the United States as a whole. Indians today are estimated at 398,050 in the continental United States and perhaps 35,000 in Alaska. The resources available to the members of the various tribes (numbering approximately 200) are far from adequate, and can be added to in piecemeal fashion only. There is considerable room for improvement in the use of existing resources, as credit facilities can be made available and as the Indians find incentive to use land themselves instead of leasing it to non-Indians.

As the 75,000 Indians who were away in the armed services (better than 30,000) or in war work (about 45,000) return to their reservations, the problem of obtaining a livelihood becomes acute on some reservations, particularly the great Navajo area. Late in the fall, the need for additional relief funds on the Navajo and elsewhere was widely publicized in the public press.

INCREASED POPULATION, DECREASED LAND RESOURCES

A quick survey of Indian resources and the uses made of them will explain why today's conditions exist. In 1890, when the Indian population amounted to 245,000, the land in Indian ownership was in excess of 104,000,000 acres. Today, with an Indian population of close to 400,000, only 56,000,000 acres are owned by Indians, and this remainder is almost without exception the poorer part of the land which belonged to them in 1890. Of this area, the Indians use about 40,000,000 acres, including 15,000,000 acres in forest and woodland, some of which is grazed and the rest devoted exclusively to timber growing; non-Indians operate, under lease and permit arrangements, 13,500,000 acres of the land.

THE AGRICULTURAL PROBLEM

The basic source of livelihood for Indians is derived from agriculture, including livestock operations. Some 44,000 Indian families derive income from farming activities, and have an average annual income of $918 per family. This is gross income, including the value of farm products consumed in the home. In contrast, the net income of non-Indian farmers, after the payment of taxes and operating expenses, amounts to $2,541, according to Department of Agriculture reports. If the Indians made full use of the grazing and farm lands now used by non-Indians, an additional 17,500 families could be provided with a minimum income of $1,200 per family. This would come close to supplying a livelihood for 60,000 families, or nearly the total number who might be expected to turn to agriculture as a means of livelihood.

It is not the purpose to insist on agricultural activities for the Indian population, although the Indians are predominantly rural and doubtless will continue so for some time to come. The 1940 census returns show that only nine per cent of all Indians enumerated were living in urban areas. This percentage has not varied noticeably in the past 30 years.

The rehabilitation of a people as impoverished as was the greater part of the Indian population comes slowly. Since 1934, when funds became available from various sources for credit operations, for land acquisition, for the construction of additional irrigation facilities, the development of stock water range, and forest improvements, road construction, soil conservation practices and similar projects, the economic conditions of many Indians have improved markedly. Agriculture extension work, vital to the rehabilitation of any rural area, was not organized on a professional basis until 1930, and credit facilities of an adequate nature were not available until 1935. Much of what has happened since then is reflected in the livestock operations carried on by the Indians. In 1932 Indians owned 170,800 beef cattle, and by 1946 these herds had increased to 382,300. Dairy cattle also increased from 11,300 to 50,000 head. Not only was there an increase in numbers but the grade and quality of all livestock was brought to high standards. Income from livestock alone during those years increased from $1,300,000 to more than $21,000,000.

OPERATIONS OF THE REVOLVING CREDIT FUND

A revolving credit fund was authorized by the Indian Reorganization Act (Act of June 18, 1934) and an amendment adopted in 1936, in a total amount of $12,000,000. The actual amount appropriated for lending operations under this authorization amounts to $5,323,400. As loans are repaid into the fund the money becomes available for relending without further appropriation by Congress. Altogether, $12,927,290 has been loaned in cash since the program was inaugurated. The effectiveness of the program, from a banking point of view, is indicated in the delinquency rate. Of $5,630,937 which was due in 1947, only $18,925 was delinquent, or less than .3 of 1 per cent. Supplementing these cash loans, the Federal Indian Service has a revolving cattle pool which originated with breeding cows obtained in 1934 and 1935 under the drought relief program. Altogether, a herd of 42,000 head was obtained and distributed to loan clients, to be repaid in kind. Up to the present, a total of 122,750 head has been loaned to Indians.

EDUCATION

The Indian Service operates 18 nonreservation boarding schools, 31 reservation boarding schools, 157 day schools, nine special schools in isolated communities in Oklahoma, and 25 special consolidated schools. Approximately 60,000 children having more than one-fourth degree of Indian blood are provided for, half of this number being enrolled in public schools and the remainder in the Federal schools listed above. The poverty of the Indian population is closely related to the problem of education. Too few Indians have received even a basic education, owing to lack of incentive on their part or to lack of facilities available to them. It is estimated, for example, that 20,000 Indian children of school age are out of school because there are neither buildings nor teachers to take care of them. The greater part of this shortage occurs on the Navajo Reservation, where facilities exist for about 5,000 children, when 24,000 children of school age are on the reservation.

The effectiveness of the Federal schools was the subject of a special research project carried out by the University of Chicago over a period of several years. The results in summary show the following: (a) whereas in 1928 only 6 per cent of the Indian students in Federal schools were in the grade in which they belonged on an age basis, 36 per cent of the students were so graded in 1946; (b) in 1928 four-fifths of all Indian students were more than one year retarded, whereas two-thirds of them were either advanced or were less than one year retarded in 1946; in 1924 only one school offered 12 grades of instruction; this number increased to 12 in 1934, and to 37 in 1944. The study also brought out, what one might expect, that the more education Indian parents have, the longer their children remain in school.

HEALTH SERVICES

More adequate health services are urgently needed by the Indian population particularly for the control of tuberculosis, the prevention of communicable diseases, reduction of infant mortality, and improvement of home and community sanitation. In the health field, as in the field of education as well, poverty is again the underlying problem. Indians who are inadequately clothed, housed, and fed are easily victimized by disease. The Indian Service operates 68 hospitals in the states, with a total of 3,728 beds, and eight hospitals in Alaska with 424 beds. According to present indication there is immediate need for an additional 800 beds for tuberculosis care, 50 full-time physicians, 130 full-time dentists, and 50 public health nurses—or the equivalent in contract services supplied by private institutions. The need in Alaska alone runs to 160 beds for general medical and surgical care and 500 beds for tuberculosis with 10 full-time physicians, 15 dentists, and some nurses.

A report issued in November 1947 on a tuberculosis control program, utilizing BCG (Bacillus Calmette-Guerin), contained tentative conclusions of considerable interest. The program was started in the summer of 1935 in the course of which more than 3,000 Indians were examined, half of them inoculated with BCG and the other half kept under observation as a control group, without inoculation. Out of 1,583 persons vaccinated, at the end of 11 years, 55 deaths had occurred of which six were caused by tuberculosis. Of the 1,460 persons in the control group not vaccinated, 108 deaths had occurred, 52 caused by tuberculosis. The immunity produced by the BCG vaccine has persisted at a rate in excess of 90 per cent for 11 years. In this respect the vaccine compares favorably with the rate of immunity induced by smallpox vaccination.

ADMINISTRATION

The act of August 8, 1946 (Public Law 687), authorized the Secretary of the Interior to delegate such of his powers and duties as he might deem appropriate to the Commissioner, and the latter official in turn to make suitable delegations to district directors and reservation superintendents. Under this authority the Secretary delegated to the Commissioner final authority to act in certain matters relating to health and welfare, fiscal affairs, education, lands and minerals, irrigation, and forestry and grazing.

In transmitting these delegation orders to his field officers, the Commissioner wrote: "I am more convinced than ever that we must get closer to the people if our programs are to yield the greatest benefit to the Indians and the country. We must constantly strive to have greater participation by the Indians in the initiation, formulation and execution of our policy work.

"There should be a real sharing of ideas about goals and how to reach them and their (the Indians') views as well as those of the entire staff of the Service should be weighed and considered. Our programs, moreover, must be coordinated and integrated with other Interior programs and those of other governmental units as well as those of local civic groups if we are to achieve maximum accomplishment."

PERIODICAL PUBLICATIONS

American Journal of Sociology
University of Chicago, Chicago, Ill.
American Sociological Review
450 Ahnaip Street, Menasha, Wis.
Interpreter Releases
Common Council for American Unity, 20 W. 40th Street, New York City.
Milbank Memorial Fund Quarterly
40 Wall Street, New York City.

Population Index
Office of Population Research, Princeton University, Princeton, New Jersey.

Social Forces
University of North Carolina, Chapel Hill, N. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Assn. on Indian Affairs, Inc., 48 East 86th Street, New York City.

American Colonization Society, 514-6 Colorado Bldg., Washington, D. C.

American Ethnological Society, Columbia University, New York City.

American Eugenics Society, Inc., 1790 Broadway, New York City.

American Jewish Committee, 386 Fourth Ave., New York City.

Ancient Order of Hibernians in America, 1648 Westmont Ave., Pittsburgh, Pa.

Birth Control Federation of America, Inc., The, 501 Madison Ave., New York City.

Common Council for American Unity, 20 W. 40th Street, New York City.

English-Speaking Union of the U. S., 19 E. 54th St., New York City.

Federation De L'Alliance Française, 22 E. 60th St., New York City.

Federation of Polish Jews in America, 225 W. 34th St., New York City.

Hebrew Sheltering and Immigrant Aid Society of America, 425 Lafayette St., New York City.

Holland Society of N. Y., 90 West St., New York City.

Huguenot Society of America, 122 E. 58th St., New York City.

Indian Rights Assn., Inc., 301 S. Seventeenth St., Philadelphia, Pa.

Inter-American Indian Institute, The, Londres 64, Mexico City, D.F.

Jewish National Workers' Alliance of America, 45 E. 17th Street, New York City.

Milbank Memorial Fund, 40 Wall St., New York City.

National Assn. for Advancement of Colored People, 20 W. 40th Street, New York City.

National Committee on Maternal Health, 2 E. 103rd St., New York City.

National Council of Jewish Women, 1819 Broadway, New York City.

National Indian Institute, Department of the Interior, Washington, D. C.

National Jewish Welfare Board, 145 E. 32nd St., New York City.

National Urban League, 1133 Broadway, New York City.

Netherland-America Foundation Inc., 10 Rockefeller Plaza, New York City.

Planned Parenthood Federation of America, 501 Madison Ave., New York City.

Population Assn. of America, U. S. Bureau of the Census, Washington, D. C.

Population Research, Office of, 20 Nassau St., Princeton, N. J.

Scripps Foundation for the Study of Population, Miami University, Oxford, O.

United States Bureau of the Census, Washington, D. C.

United States Immigration and Naturalization Service, Franklin Trust Building, Philadelphia 2, Pa.

Young Judaea, Inc., 381 Fourth Ave., New York City.

Young Men's Hebrew Assn., Lexington Ave. and 92nd St., New York City.

Young Women's Hebrew Association, Lexington Ave., and 92nd St., New York City.

Zionist Organization of America, 41 E. 42nd St., New York City.

DIVISION XV

SOCIAL PROBLEMS AND CONDITIONS

PUBLIC SOCIAL WORK AND WELFARE

By Howard L. Russell
Director, American Public Welfare Association

INCREASED CASE LOADS AND COSTS

Public welfare agencies during 1947 were faced with increasing case loads and greater expenditures. During the war years, case loads decreased as many persons of marginal employability found steady or part-time work. With the end of the war and the return of veterans to the labor market, these marginal workers were pushed out of the labor pool, and many were forced to seek public assistance. Expenditures for public aid were greater because of the increased case loads, but a more dominant factor causing increased costs was the upward trend throughout the year of the cost of living, especially the essentials of everyday life.

One of the most difficult tasks facing public welfare administrators during 1947 was to keep assistance grants abreast of constantly rising living costs. Food represents a higher proportion of the total budget of assistance families than of any other population group. Handicapped persons depending on public aid for their basic necessities of life are affected most by inflationary trends, and are particularly hard hit by rising food costs.

REVIVAL OF INTEREST IN PUBLIC WELFARE

Because of its great expenditures and its direct effect on the daily lives of millions of people in the population, there has always been considerable interest in the public welfare program on the part of state and national legislators and the general public. During the war years, because the entire attention and energy of the country was devoted to bringing the conflict to a successful conclusion, not much attention was paid to the public welfare program. The year 1947, however, again saw the national and state legislators turn their attention to public welfare. Likewise, the interest of the press, as well as the attention of various organizations and groups was frequently focused on this field. The terms "public relations" and "interpretation" were again frequently heard in meetings of public welfare people. Interest in the public welfare program was greater than it had been since pre-war years and was frequently expressed in constructive debate on questions involving both policy and administration.

Equally significant during this year was the increased demand on public welfare agencies for help other than financial aid in treating social problems relating to housing, dependent and neglected children, lack of medical care, and family maladjustments. The need to provide social services served to emphasize the long continued shortage of trained and qualified social workers in the public welfare field.

FEDERAL WELFARE LEGISLATION

Much of the attention of Congress and its committees during 1947 was naturally devoted to international problems. While a number of proposals were introduced concerning various aspects of the national public welfare program, no outstanding Federal legislation was enacted during 1947 in respect to the administration or financing of the public welfare program.

The 80th Congress did extend the provisions of the 1946 Social Security Amendments providing additional Federal financial aid in the three assistance categories until June 1950. As a result of a resolution passed by the Senate, the Senate Committee on Finance appointed an Advisory Council to make a complete study of the Social Security Program. A preliminary report of this committee is expected early in 1948, which will deal specifically with the problem of total coverage of workers and increased benefits under the Old Age and Survivors Insurance program.

STATE WELFARE LEGISLATION

Some 44 state legislatures met officially during 1947. Relations between public welfare administrators and legislative bodies were carried on against this backdrop of rising case loads and increasing expenditures. On the basis of objective forecasting, every state welfare department was obliged to present budget requests in an amount substantially larger than for the previous fiscal period. At least one-third of the state programs received all the financial support requested in their budget presentations. Among the remaining group, several state administrators were instructed not to lower assistance standards with a promise that, if deficits occurred, they would be made up at subsequent legislative sessions. In every state but two, actual appropriations in dollars were larger for the current fiscal period than for the past corresponding period. In no state was there a disposition or a proposal to deny the responsibility of government for handicapped people by wiping out any major assistance program.

STATE LEGISLATION AFFECTING GRANT LIMITS

The 1946 Social Security Amendments, which provided increased Federal financial participation in the three categorical assistance programs, had a decided influence in raising or eliminating the legal or administrative maximum limits upon grants. In September 1946, just before the effective date of the amendment, 96 of the 148 public assistance programs then in effect in the United States had such legal or administrative maximum limits. By the end of 1946, 60 of these 96 maximums had been raised and three eliminated.

State legislatures meeting in 1947 carried this trend still further, although in a few instances, ceilings were established where there had been none before. Three states in 1947 deleted legislative maximums; Maryland on Old Age Assistance, Iowa on Aid to Dependent Children, and Colorado on Aid to the Blind. In addition, ten states—California, Connecticut, Delaware, Florida, Indiana, Minnesota, North Carolina, Tennessee, Vermont and Wyoming—raised their maximums on Old Age Assistance. Seven states, California, Delaware, Florida, Illinois, Indiana, Maryland, and Tennessee increased the maximums on Aid to the Blind. Indiana, Minnesota, South Dakota, and Tennessee raised the maximums on Aid to Dependent Children.

In contrast, Delaware and Maine established legislative maximums for Aid to Dependent Children. Utah established legislative maximums on all three types of categorical assistance to replace the previous limits prescribed by administrative action. Legislative changes with respect to residence, for the most part, have been liberalizing in effect. Utah removed residence requirements for public assistance from the law. Minnesota and Wyoming reduced from five years to one year the residence requirements for Aid to the Blind.

Provisions relating to income and property, including lien provisions, were somewhat relaxed in Idaho, Maryland, North Carolina, and Vermont, but were made more restrictive in a number of other states including Indiana, Kansas, Oregon, Utah, and Washington. In Utah, liens are now required under certain circumstances. Indiana and Washington, which previously had no lien provisions, have now adopted them. Three legislatures—Indiana, Maine, and Washington—moved to emphasize the responsibility of relatives to support their needy kin. The citizenship requirement for Old Age Assistance in Vermont was abolished. Maryland repealed its statutory provisions for limiting the granting of ADC to children living in "suitable" homes.

STUDY AND REVISION OF WELFARE MEASURES

Financial support, important as it is, is not the only measuring stick of the extent of legislative interest. Broad legislative programs are often sponsored by state and local welfare agencies and, in contrast to appropriation measures, require several years of education and debate to make them effective. Wisconsin culminated some years of study by completely rewriting and recodifying all its welfare measures in seven major phases of legislation. The Illinois Public Assistance Laws Commission completed a thorough job in codifying the public aid laws of that state and had its proposed new law unanimously passed by the Senate, although it failed in the House. Utah, in spite of enacting some legislative restrictions, produced an excellent and basic assistance act. Vermont took a major step in welfare organization by combining its categorical assistance programs under one state agency. Several states with an eye to the imminence of new Federal social security legislation passed enabling acts making it possible for them to conform automatically to any new Federal requirements.

LOCAL PUBLIC WELFARE

Local public welfare agencies during 1947 felt the impact of increasing case loads, and available funds were strained by the need to increase individual grants because of rising living costs. Local governments, with their inflexible tax sources and faced with rising welfare costs, generally turned to state and Federal governments for financial aid. This desire for having large governmental units assume the increased cost of public aid is not accompanied by any desire to further centralize welfare administration at the Federal or state level.

The year 1947 brought an increased realization of the value and importance of having the local administration of all public welfare programs in a community centralized in one department. Such integration has as its objective the providing of better services to citizens of the community and also the effecting of economies in administration.

The uniform appearance of the problem of high grant cases in many communities represents, perhaps, the most difficult factor of recent years in the relationships of welfare administrators and legislators. The dilemma of public welfare workers, who would meet aid adequately at the risk of inviting legislative restrictions, is not easily solved.

PUBLIC ASSISTANCE

The upward trend in public assistance case loads, which began shortly after the end of the war, continued in 1947. The number of families and persons receiving public aid had decreased sharply during the war years, and it was expected that the case loads would show an increase at the conclusion of the war's hostilities. In some communities and states, the case loads have apparently returned to their "normal" level and are not increasing at the end of the year. In other states, however, case loads are still on the increase as 1947 draws to a conclusion.

During August 1947, a total of approximately 2,290,000 persons received Old Age Assistance. This figure represents an all-time high for this program. The previous peak was in June 1942 when 2,254,000 persons were receiving Old Age Assistance. The number of recipients of Old Age Assistance increased 7.6 per cent over the same month in 1946. Expenditures for this type of aid had increased 23 per cent over the same month a year ago and now totaled $83,000,000 for the month.

In August 1947, public aid on behalf of dependent children was given to approximately 400,000 families, including 1,027,000 children. This was an increase of 27 per cent over the number of recipients a year previous. Grants for this type of aid totaled almost $25,000,000 for the month of August 1947 which is an increase of 47 per cent over the same month of the previous year. The effect of the rapidly rising costs of living is shown in this expenditure figure.

The 79,000 blind persons receiving public aid in August 1947 represent an increase of 6.5 per cent over the year before. Payments to this group totaled about $3,000,000 in August which was an increase of 19 per cent over the expenditures in the same month of the previous year.

In August 1947, 330,000 families and single persons were being aided through general assistance funds, an increase of 19 per cent over the previous year. The grants to these cases in August were approximately $13,500,000, which was an increase of 39 per cent over the expenditures for the same time in 1946. For this type of assistance, the expenditures represent state and local funds only, in contrast to assistance to the aged, the blind, and dependent children where the Federal Government shares the cost.

SOCIAL INSURANCE PROGRAMS

The operations of the federally administered program of Old Age and Survivors Insurance and the state administered programs on unemployment compensation are importantly related to public welfare in their assumption of an increasing role in meeting economic need.

Monthly benefits under Old Age and Survivors Insurance have increased each year since the beginning of the program in 1940. Payments during the Federal fiscal year 1946-1947 totaled $426,000,000. During August, almost 1,900,000 persons were receiving benefits under this program at the monthly rate of about $38,000,000.

Benefit payments for unemployment insurance, on the other hand, rise and dip with every fluctuation in the general economic situation. Payments during the last Federal fiscal year under this program were $311,000,000 less than in the previous fiscal year.

The first nationwide program providing sickness and maternity benefits went into operation in July 1947 under the provisions of the Railroad Unemployment Insurance Act. Payments in the first month of operation were made to almost 10,000 cases for sickness and to 160 cases for maternity benefits. July also marked the first month in which reconversion unemployment benefits became payable to seamen who had served on Federal maritime vessels operated by the War Shipping Administration.

The availability of social insurance benefits has an appreciable effect on reducing the demands for public aid which would otherwise have been made on the public welfare agencies.

INSTITUTIONAL CARE FOR THE AGED

During 1947, pressure was constantly felt by public welfare administrators regarding the provision of more and better facilities for aged people who can not care for themselves. Homes for the aged, nursing homes, infirmaries for the chronically ill, convalescent homes, and other facilities are generally crowded, substandard, and in some communities entirely lacking.

As the percentage of the population in the aged group continues to increase there will be an increasing number of persons in need of some type of custodial, medical, or hospital care. Aged persons in need of such care generally seek such facilities in urban centers. The housing shortage has also complicated this problem of securing enough adequate facilities. Some states are authorizing the use of state and local funds for payment of Old Age Assistance grants to people in public institutions. This has followed the passing of enabling legislation, which promoted the conversion of suitable poor farm facilities into modern infirmaries. Many states are reviewing their licensing laws as a medium for raising standards in convalescent and nursing homes.

Local governments in most states bear almost the entire cost of public hospital care for the chronically ill and custodial care for the disabled and handicapped. Local government is least able financially to bear the cost of needed improvements and extension of institutional care. The year 1947 saw a continuation of the efforts to have state and Federal governments assume a greater share of the financial cost of providing this type of care.

CONCLUSION

In 1947, the number of persons receiving categorical assistance was equal to the number of persons receiving such aid before the war. Because of a sharp increase in the cost of living, especially in the basic essentials of food, clothing, and fuel, expenditures for categorical assistance were greater than just before the war. Continued inflation, particularly in food prices, constitutes the greatest threat to public aid programs that must carry out the intent of Federal and state laws to provide help to needy people on a basis of a decent and healthful standard. Increasing attention is being paid to administrative and social work techniques that will insure the maximum values from the use of the public welfare dollar.

PRIVATE SOCIAL WORK

By Robert E. Bondy

Director, National Social Welfare Assembly

GENERAL

The second year after the Second World War found private social work heavily affected by war's continuing aftermath and by the unresolved attempt to transfer ways of living to peacetime. The tensions and uncertainties of being neither at war or in peace underscored the lives of people and thereby conditioned the services and operations of private organizations existing for advancement of human wellbeing. Voluntary health, welfare, and recreation services were more than ever in demand.

Higher prices resulted in higher family budget costs. Budgets of private social work agencies were inevitably affected. It took more money than in previous years to render the same services. Physical plant repair and replacement deferred by war's priorities lagged, with physical plant further deteriorating in many situations. Increased costs put a damper on inauguration of needed new services.

The war weariness of people brought the reaction of reduced volunteer personnel being available for private services. Professional personnel shortages remained large and left many agencies with inadequate staffs. Where new services were provided in budgets, personnel shortages delayed their beginning. But removal of war's limitations brought successes. Annual conventions and regional meetings were renewed. Publication limitations were lifted. The tempo of activities became more reasonable. Ways of work carried fewer rigors.

New calls for unity and indivisibility in social welfare rang throughout the field of private social work. If America was to keep faith in a jumbled world, America itself must be strong in its human well-being. So new urges came to make social welfare through private organizations more effective and better integrated with public welfare and related interests in the nation's economic and political life.

PLANNING AND FUND RAISING

The year 1947 was the first full year of the National Social Welfare Assembly, Inc., organized as the central national organization for social welfare with 48 government and voluntary national organizations affiliated, and five associate groups. The Assembly combined lay and professional, government and voluntary, national and local social welfare interests for the furtherance of organized effort for human wellbeing.

Its functions are to facilitate more effective operation of organized social welfare, to study and define social welfare problems and human needs and develop plans of action to meet those problems and needs, and to act in behalf of social welfare, where representation of its interests is indicated. Wide participation in its committees and program of national organization and local community people is sought. The Assembly, on the one hand, serves and is a facility for the use of its affiliate national organizations; on the other hand, it gives service to the local community through guidance and program material and through joint national-local planning.

An important statement of understanding was approved in December by Community Chests and Councils, Inc. and The Assembly to obtain cooperation in planning and maintaining services to meet human needs. The Assembly is recognized as the central national planning body for social welfare, and Community Chests and Councils, Inc. as the national spokesman for state and local joint planning and federated support of social welfare services.

In order to avoid duplication in activities certain common interest activities are recognized as justifying the joint sponsorship of the two organizations, namely, national budgeting, citizen participation, and field service cooperation.

The National Health Council, which serves as the Health Division of the Assembly began a program of providing service to and extending the organization of local health councils.

National organizations in private social work were the pioneers in the development of many local and national social services and continue as a vital part in the American system of social welfare. Their fields of interest have become more specialized and yet broader, while their joining for cooperative activity through the National Social Welfare Assembly has demonstrated their recognition of a unitary part in the whole. They differ widely in function, structure, and financing, but have the common denominator of voluntary organization for social wellbeing. Their position as an indispensable of the whole has been strengthened during the year.

METHODS OF RAISING FUNDS

Central state organizations for social welfare took different forms in Massachusetts, Michigan, Arizona, Oregon, and North Carolina through an official procedure for licensing of appeals for money. In Massachusetts, a statewide voluntary service unites state and local bodies, and cooperates with national agencies, in behalf of better social service in local communities. Massachusetts, Michigan, Arizona, and Oregon are seeking to develop state chests to conduct federated money raising for state and national appeals.

This state development is significant as a link in the total chain of planning for adequate service through national, state, and local effort. Citizen groups are generally participating in these efforts, as in New Hampshire where the Citizen's Council has statewide representation of individuals and organizations. The combining of federated money raising with joint planning in states is discussed as the appropriate goal.

The organization of local communities for social welfare services through federating of local private agencies in community chest and councils of social agencies now reaches about half of the nation's population in over 900 chests. Almost 400 councils of social agencies now exist.

Fund raising through chests for private social work approximated $175,000,000 in 1947, with 102 per cent of the 1946 actual total raised in 1947, and about 97 per cent of the 1947 goal itself. This result reflects the holding and extending of the line of support.

The trends of federated money raising are decidedly upward. A study by Community Chests and Councils, Inc. of a typical group of chests showed appropriations to agencies for 1947 was 67.5 per cent above 1941 and 81 per cent above the 1935-39 average. The national promotion of local federated money raising under the Red Feather symbol, with the theme "Everybody benefits—everybody gives," was more widely extended through Community Chests of America, organized by Community Chests and Councils, Inc. A typical group of chests reported $2.53 raised per capita for 1947 budgets. The amount raised for local purposes increased 16.4 per cent from 1946 to 1947.

More chests included national organization budget needs, due to larger recognition of the oneness of social welfare and the desire of local contributors to support national services through chests. A study of more adequate financial support of national organizations by the National Social Welfare Assembly showed need for better interpretation of national agency services to local communities and need for a quota plan assuring equitable distribution of national appeals among local communities.

National budget review was extended through the National Budget Committee to more national organizations for the guidance of local communities.

Independent appeals for funds were made nationally and locally by a number of organizations, notably, the American Red Cross, National Tuberculosis Association, National Foundation for Infantile Paralysis, American Cancer Society, and National Society for Crippled Children and Adults with results in excess of goals sought or in excess of the total raised in 1946. The Red Cross raised about $80,000,000 on a goal of $60,000,000.

Discussion bordering on controversy occurred regarding the perennial issue of the joining of these independent campaigns with federated campaigns of chests. The result was a stalemate, the independent campaigns continuing and tensions mounting to the detriment of private social work. An accommodation whereby certain independent campaigns would continue, but be cooperatively related in timing to federated campaigns, seemed the immediate desirable objective.

Councils of social agencies gave more attention to the composition of the basic membership body, with a trend toward broader participation continuing. Closer integration of private and public agency interests through councils was studied and moved forward in some communities. Metropolitan area planning was furthered by the formation of a central council for Delaware, Montgomery, and Philadelphia counties in Pennsylvania.

Increased interest developed in the organization of neighborhoods as a means of wider citizen participation and of making health, welfare, and recreation services more readily available to people.

Social service exchanges for clearance among agencies serving individuals and families had increased interest in standards and eligibility requirements for member agencies. The review of case work procedures related to the use of the exchange was under discussion by case workers.

PUBLIC UNDERSTANDING AND PARTICIPATION

Recognition that private social work must have wide public understanding and participation made solid headway in 1947. The contributor and client of social agencies have continued to receive the spotlight of efforts to acquaint them with the financial needs and the services of the agencies themselves. Public relations plans to reach the general public for better understanding of the causes of social breakdown, as well as to obtain understanding and support of private social work have had wider acceptance.

Health services have long sought to teach prevention of disease. Welfare services are increasingly teaching prevention of social ills. This is the new goal. Trained public relations personnel and adequate training facilities are needed to further the work of public understanding.

Citizen participation has become the twin of public understanding. Wartime volunteer service has taught many people the need of volunteer service in agencies. Central volunteer bureaus in local communities in the main have held the position established during the war. Agencies have more widely recognized the need for such service. Training of volunteers has had more attention.

Beyond volunteer service in agencies, the participation of the citizen in national and local movements for the social welfare has had attention. Participation has brought understanding, probably more solid understanding than that gained merely through listening, reading, and seeing. The Committee on Citizen Participation of Community Chests and Councils, Inc. has become a new force for furthering plans for such citizen participation.

THE PROFESSION OF SOCIAL WORK

The effectiveness of private social work has been enhanced by the dual recognition of citizen participation and of competent professional service as requisites. Professional social workers are insufficient in number to meet the needs, and, as a corollary, there is a growing strength in the professional associations for the building of competence.

Matters having greater attention in the professional field include registration and licensing, perfecting of personnel standards, defining standards of professional competence and social work education, and concern with the place of social work in public and private fields and in international matters.

The inadequate financing of placement and counseling services in the Social Work Vocational Bureau resulted in proposals for assumption of responsibility by public employment services of certain placement and counseling functions and for the establishment under voluntary auspices of a central register of workers in all fields.

The professional schools of social work faced the shortage of competent workers by attention to the content of the undergraduate and the professional courses, to field work needs, to increased resources for professional training, to cooperation of operating agencies in arranging for training of staff, and to supplemental methods of training. The stake of the whole field of private social work in a bigger supply of competent workers becomes more widely recognized.

SERVICE TO INDIVIDUALS AND FAMILIES

Government carried the basic responsibility of material care and related service to people in need of human necessities through the Social Security and public welfare systems of Federal, state, and local governments. Private family and child welfare agencies continued as the means of demonstration of need, the supporter of government effort, and the vehicle for special and more intimate services not feasible for government to carry.

Family service agencies, in their primary role of the strengthening of family life, have dealt with the problems of family stresses growing out of post-war adjustments, strains from inadequate housing, and material problems attendant upon higher living costs. They have sought through varied means a wider education in family life and have given attention to improving the conditions for good family life and increasing the understanding of what these conditions are. There is wider acceptance of this responsibility. Joint planning with community organizations, civic bodies, and citizen groups has been furthered to serve this end.

CARE OF CHILDREN

The care of children in and out of their own homes had new emphasis during the year because of the necessity for many mothers to work. The withdrawal of Federal funds for day care has brought serious retrenchment in day-care facilities. Many communities have struggled to maintain these services.

The deeper understanding of wartime of the meaning of separation of children from their parents has stirred activity to make it possible for children to remain with their parents. It has been responsible for efforts to obtain more adequate funds for aid to dependent children and to widen the use of the funds. Indiscriminate use of institutions has decreased, and the shortening of institutional care has become a tendency. In adoption, there has been acceleration of study of the infant to achieve earlier adoption, and more thorough study of and preparation of the adoptive home as a safeguard to the child.

CARE OF THE AGED

Advances in care of the aged are evidenced by special attention to the subject in community surveys and increasing public awareness of the increasing age of the population calling for special attention to needs of the aged in employment, recreation, and care in individual homes.

The National Social Welfare Assembly study on the needs of the field of care of the aged resulted in recommendation for the establishment in the Assembly of a national clearing house of information on local programs and of advisory services to communities seeking guidance for plans in the institutional and non-institutional fields.

In individual communities, emphasis has been given to housekeeping services for the aged as special projects, central registry of vacancies in nursing homes, central projects to stimulate interest of agencies in older people, adaptation of financial entrance requirements of private homes to permit acceptance of residents receiving old age assistance.

In institutions structural and fire hazard reduction matters and the presence of the qualified attendant—all of them important—tend to crowd out attention to nutritional and human problems.

PROBLEM OF THE MIGRANT

The size of the moving or migrant population coming into or through communities in 1947 was larger than in the years between 1936 and 1940, the problems are more serious, relief needs are increasing, and local facilities are inadequate. Census Bureau reports and studies of the National Travelers Aid Association sustain these conclusions.

In order to help communities deal with this problem, the Social Case Work Council of the National Social Welfare Assembly has prepared a pamphlet, "Service to Migrants," intended to present some guidance of social case-work service to individuals or families faced with problems growing out of moving from one community to another. This statement is based on the fundamental principle that free movement is a basic right of the American citizen.

Agencies face obstacles in planning for the needs of migrants because of varying settlement laws, community attitudes resentful of migrant needs, and lack of services and facilities. There are heartening new recognitions of the right of freedom of movement of people.

LEGAL AID SERVICE

The needs of people for legal aid service have had wider recognition in 1947 in the campaign to extend organized legal aid services to cities of 100,000 population and over. The American Bar Association has spearheaded the movement in close cooperation with the National Association of Legal Aid Organizations.

Two types of difficult legal aid cases have predominated: family problems of divorce, separation, annulment, non-support and desertion, and evictions because of housing shortage.

SERVICEMEN PROBLEMS

The large part of the population made up of service and ex-service men and their families is a larger concern of private social agencies than formerly. The Red Cross camp and hospital services, therefore, render a significant service. Staff at able-bodied and hospital installations of the Armed Forces serve the men on personal and family problems, as do the chapter workers in behalf of the families back home.

New services were inaugurated in 1947 in a well-rounded recreation program for able-bodied men in the Army, and the hospital recreation program continues for the hospitalized. Service was expanded in behalf of servicemen in military prisons.

The Red Cross hospital service program in military hospitals is being adapted to peacetime, particularly in its individualization of service to each patient. Other organizations, including the National Jewish Welfare Board and the Y.M.C.A., are giving new attention to their army and navy service.

Whether the needs of the ex-service men arise from service or civilian life, the nation and the home community are responsible for assisting the veteran-civilian. Organized service is needed, of which the Government supplies much, but voluntary organizations—and they alone—can aid the veteran-civilian in the difficult adjustment he must make.

Principal service needs of the veteran and his family during 1947 were for housing, job placement, job and educational counseling, personal and family problems, job training, and service in obtaining veteran's benefits, such as claims, loans, and insurance.

AID IN DISASTERS

During 1947, the United States had the most destructive series of major disasters in history, according to Red Cross reports. Up to Dec. 1, there were 267 disasters requiring Red Cross aid.

Five major disasters were listed as follows: the worst tornadoes in ten years in Texas and Oklahoma in April; Texas City explosions and fire in mid-April that claimed 500 lives and caused over 3,500 injuries; June floods in seven midwestern and eastern states; severe Florida-Gulf states' hurricane and protracted floods in September; and devastating New England forest fires in October.

Disaster-caused deaths up to Dec. 1, totaled 1,266 in Red Cross records, twice the toll of 1946. Altogether, 7,969 persons were injured. Few parts of the country were spared in the disasters which struck 46 states and Alaska, including 141 fires, 50 floods, 41 tornadoes, three hurricanes, 21 other storms, 30 explosions, minor earthquakes, and wrecks.

Over $10,000,000 was expended by the Red Cross in disaster relief operations to assist 305,682 persons. In terms of costs, it was the peak year in Red Cross disaster work for the past decade.

INFORMAL EDUCATION AND RECREATION

The private agency in this field continues to provide varied types of leisure-time programs under trained leadership, which will enable an individual to learn skills, participate in group thinking and action, and have fun and enjoyment. The attention is on varied and quality group activities. These agencies serve people in all age groups, though some are limited to youth services. They have strengthened and increased their services in the following ways: by reemphasizing their broad educational aims as well as continuing their recreation programs for all age groups; by cooperative planning, specially on a neighborhood basis; by increasing coeducational activities for the older adolescent and young adult age groups; by establishing special services to certain groups, such as informal educational and recreation programs for the aged and programs for hospitals; by recognizing the value of mass activities as well as small group activities so that a varied community program for all age groups is presented.

Other trends particularly apparent in 1947 were: programs of education on world affairs, with particular reference to United Nations and UNESCO; emphasis on youth participation in planning their own activities and in cooperative community projects, expansion of self-governing youth councils, educational programs for youth with reference to pre-vocational training, vocational guidance for youth, special conferences of youth, such as the YMCA-YWCA Conference at Grinnell, Iowa, which are concerned with youth's interest in marriage and the home, the job, and service in the community; special emphasis on training of volunteer leaders and clear definition of board members' responsibilities; expansion of camping activities, with particular expansion in day camps in metropolitan areas; growth of associations of professional workers, and interest in training and education for this profession.

In the settlement movement, recent trends included: a noticeable change toward higher standards of professional education for settlement workers; more representative boards for settlements, including particularly representation from the neighborhoods served; closer working relationship between neighborhood houses sponsored by religious bodies and nonsectarian settlements and community houses; closer participation of settlements, neighborhood houses, and similar agencies in the National Federation of Settlements; and renewed effort to reestablish fellowship with settlements in Europe and to include Chinese community center workers in such fellowship.

Organized camping in 1947 served more individuals, and more camping enterprises were launched than formerly. Important developments in improved camping were noticeable. Standards for leadership personnel were raised. Camp programs were enriched through emphasis on the smaller group. Use of camp environment to facilitate a primitive type of living was made. Standards of health and sanitation were restored to prewar position. Young adults received wider attention in provision of camping facilities. A generally upward movement occurred regarding camp standards. Awareness of the need for more adequate training of camp personnel seemed more general. Camping accepted a new sense of its social significance, expressed in wider intercultural objectives.

HEALTH PROBLEMS

As in other fields of private social welfare, voluntary health agencies preserved the unique place of demonstrating the practicability of public health services in fields in which official health agencies have been slow to operate. Health problems have been kept continuously before the country by them. Experimentation with new procedures and exploration of new fields has proceeded.

New leadership was undertaken through the National Health Council, in which most of the national health agencies participate. The Council is serving local health councils and is now developing a plan to gain wider organization of public health departments in counties and local communities.

Proposals for federating the money raising appeals of national health agencies have had consideration in some quarters, but without result.

The importance and range of activities of the principle voluntary health agencies were shown in a 1947 review by the National Health Council and the National Social Welfare

Assembly of programs and special projects on which the interest and participation of the public and other organizations were desired. The following selective listing of some of the highlights of this study typifies the current interests of those organizations:

American Cancer Society.—Arousing the American people as never before to the danger of cancer and the need for seeking medical aid at the earliest sign of such danger. Financing a nationwide program of basic cancer research which in extent and coordination probably exceeds that ever launched against any disease. Providing hospitals and clinics with substantial aid in developing cancer detection centers and in increasing the services of cancer diagnostic and treatment clinics.

American Hearing Society.—Participation in activities of National Hearing Week. Continuation of present program of activities. Expansion of work in behalf of children. Promotion of hearing conservation programs in schools and help to secure state and national legislation for hard-of-hearing children.

American Heart Association.—National Heart Week participation. Participation in the health education of the public and in the general publicity on the problems of the no. 1 killer in this country.

American Public Health Association.—Development of interagency cooperative bodies for securing full time local health services for all areas of the United States.

American Red Cross.—Organization of voluntary blood-donor service throughout the country calling for participation of volunteer blood donors and volunteer workers. Wider use of society safety first aid, home nursing, nutrition, and other class instruction programs. Volunteer participation in hospital services in hospitals of the armed forces and in veterans' hospitals.

American Social Hygiene Association.—Annual Social Hygiene Day. Emphasis in 1948 will be on case-finding for the venereal diseases. Continuous support for maintaining public interest in pre-natal, pre-marital and V. D. laws and legislation designed to protect family life and national health in the matter of commercialized prostitution. Stimulation of community interest on school-community programs of sex education (family life education, education in health and human relations), by special educational surveys, consultation, research study of existing and growing programs in this field and by providing speakers for meetings concerned with this aspect of education. Support for community venereal disease control programs. Support of the Program of the Association's Committee on International Relations and Activities and of the Regional Office for the Americas of the International Union Against the Venereal Diseases which are integral parts of the Social Hygiene program carried on by the Association.

National Committee for Mental Hygiene, Inc.—Establishment and development of child guidance clinics. Establishment of vocational guidance processes for patients about to be discharged from mental hospitals. Joint participation in the development of the program for the International Congress on Mental Health in London in 1948.

National Foundation for Infantile Paralysis.—The inclusion in program calendars of public educational information programs on infantile paralysis. Recruitment drives for Polio Emergency Volunteers to assist physicians, nurses and physical therapists in the care of infantile paralysis patients in the hospital, clinic and home. Recruitment of volunteers to assist Chapters in the finding of old cases, through the Case Record Survey, who may benefit from further treatment. Adoption of projects in connection with the Chapter for the entertainment of patients convalescing in hospitals or homes, and for purchase of toys, books, etc. Transportation of patients to clinics and hospitals for regular checkup.

National Organization for Public Health Nursing.—Cooperation which public health nursing services need from other groups is in inverse ratio to the supply of nursing personnel available, and is really limited only by the imagination of the executives involved, and the time they can give to arranging details of the cooperative effort.

National Safety Council.—Basic principle of successful national campaign for accident reduction is the enlistment of the support of varied interests and organizations.

National Society for the Prevention of Blindness.—Interest for the creation and development of sight conservation services at both the state and local level. Consultant services are offered to develop this interest. Further development and wider use of vision testing services; extension of sight saving classes in schools; protection of workers in industry through correction of physical defects.

National Tuberculosis Association.—January, 1948 marks the opening of the National Tuberculosis Association campaign that will have as its theme "Get a Chest X-ray." This is being sponsored by The Advertising Council, Inc., for the National Tuberculosis Association and its affiliates as a nationwide, continuing educational campaign to drive home to the American people the necessity of early diagnosis of tuberculosis. The rapidly growing practice of mass X-ray services in communities should be of interest to all community agencies and all such agencies could, it seems, aid the tuberculosis associations and the health departments in furthering such services. All local community agencies can, of course, be of particular help when a community-wide X-ray survey is done in a city or community.

HOUSING PLANS AND CONSTRUCTION

By Jack H. Bryan

Director of Information, Housing and Home Finance Agency

NEW HOUSING CONSTRUCTION

From the standpoint of the number of new permanent dwellings built, 1947 was the best year since the all-time high reached in 1925. This high rate of activity was reflected on the financial side as the volume of new home mortgages reached another post-depression peak and the total non-farm home-mortgage debt probably reached $30,000,000,000 for the first time in home-financing history. On the legislative side, too, the year produced several important pieces of Congressional action highlighted by approval of the President's Reorganization Plan for the permanent government housing agencies into a single coordinated unit.

More new houses were started in 1947 than in any year in the past two decades. Preliminary estimates indicate that approximately 860,000 new permanent dwelling units were put under construction during 1947, compared to 671,000 new permanent units in the previous year. The all-time high for home construction in the United States was established in 1925 when 937,000 new dwellings were reported. Home building during the last half of 1947 was at an annual rate about equal to this record pace.

PROGRESS IN RENTAL HOUSING

A primary objective of the 1947 housing program was the provision of rental housing, and considerable progress was made in this direction. By the end of November, applications for rental housing projects, providing over 160,000 new dwelling units for the Second World War veterans and their families, had been received by the Federal Housing Administration. All these projects were to be built and operated by private interests with funds advanced by private lending institutions. The loans will be insured by the FHA under the Veterans Emergency Housing provisions in Title VI of the National Housing Act. The problem of providing sufficient rental units, however, is still a serious one, since by far the majority of all new accommodations provided during 1947 were single-family houses which are usually built for sale rather than for rental purposes.

Despite the good record of new construction, housing remained one of the most serious domestic problems. The need for additional accommodations was still being measured in terms of millions of units. High prices were as prevalent in the housing picture as in other segments of the nation's economy, and both material and labor costs in construction work rose significantly during most of the year. This was offset to some extent by a more steady flow of building materials which permitted more efficient operations and a shorter period of construction.

RELAXATION IN EMERGENCY HOUSING POWERS

Emergency housing powers exercised during 1946 by the combined Office of the Housing Expediter and the National Housing Agency were gradually relaxed during the first part of the year as materials production improved. Virtually all of these powers, except veterans' preference for new homes and restrictions on amusement and recreation construction, were repealed by Congress in the Rent Act in June 1947. Modified rent controls under this act were assigned to the Office of the Housing Expediter.

HOUSING LEGISLATION

Significant legislative enactments during the year included the approval of the President's Reorganization Plan No. 3, which established the Housing and Home Finance Agency as a permanent unit of the Gevernment, combining the principal agencies in this field. An additional sum of $35,000,000 was appropriated to complete the program of re-using existing temporary structures originally built for war workers to provide housing for veterans, especially at the colleges and universities where they were in training under the G.I. Bill of Rights.

MORTGAGE AND LOAN INSURANCE

The authority of the Federal Housing Administration to insure residential mortgages was extended. Insurance under Title I, for remodeling and repairs, of the National Housing Act may now be written until July 1, 1949. Title VI insurance was extended to March 31, 1948, and the limit of insurance which could be approved under this section was raised to $4,200,000,000. However, this ceiling was reached in November, and legislative steps were taken early in the special session of Congress to raise the limit of Title VI loans which could be insured by the FHA.

ESTABLISHMENT OF THE HOUSING AND HOME FINANCE AGENCY

The Housing and Home Finance Agency was established on July 27, 1947 under Reorganization Plan No. 3 of 1947, submitted by the President and approved by the Senate. The reorganization plan groups the principal permanent housing functions of the Government in a single agency. With the establishment of the HHFA, the wartime National Housing Agency was abolished.

The HHFA covers remaining war housing responsibilities and housing functions that, before the war, were scattered among 13 agencies in seven departments and independent establishments of the Government. It includes the Office of the Administrator and the following constituent operating agencies: the Home Loan Bank Board, the Federal Housing Administration, and the Public Housing Administration. The FHA and the PHA each have a Commissioner as the administrative head of the organization, while the Home Loan Bank Board is composed of a bi-partisan terms of years. All are appointed by the President and confirmed by the Senate.

In addition, the Plan establishes the National Housing Council on which the Administrator, the constituent agencies and other government departments with direct housing functions are represented. The Council includes the Administrator of the HHFA, who serves as its chairman, the Commissioners of the FHA and the PHA, the chairman of the HLBB, the Secretary of Agriculture, the chairman of the Board of Reconstruction Finance Corporation, and the Administrator of Veterans' Affairs or designees of the latter three.

The National Housing Council brings into consultation the major agencies of the Government having a direct part in housing that are not constituents. Its task will be that of coordination of housing policy among all the agencies and with general economic and fiscal policy of the Government. It will provide a special avenue of liaison with private industry and private interest groups and a means of directing the attention of all housing agencies jointly to the solution of common problems, such for instance as adequate statistical methods and common approaches to [illegible] problems.

The Administrator of the Housing and Home Finance Agency is responsible for the general supervision and coordination of the functions of the three constituent units making up the new agency. In addition, the Administrator has by separate acts of Congress a responsibility of great moment in the housing situation [illegible] and [illegible] of [illegible] throughout the country. The permanent and temporary war and emergency units of housing [illegible] under the Lanham Act [illegible] [illegible] of which [illegible] are temporary. The [illegible] that was formerly assigned to the Federal Public Housing Authority [illegible] the responsibility for policy and supervision is in the Administrator.

How to manage and dispose of this housing in the best public interest is an extremely difficult task. The disposition policies, announced early in September, provide for disposal, with the primary emphasis on encouraging home-ownership and to give preference [illegible] to veterans. [illegible] with communities and [illegible] on a [illegible] basis. Within the framework of these policies, the Agency is seeking to carry out the expressed general intent of Congress in the disposition program in a [illegible] manner.

In summary, the Housing and Home Finance Agency is designed through full use of government housing resources to aid private industry to provide decent housing [illegible] for all income groups of the American population, and to bring together [illegible] and parts of the [illegible] housing industry, and government at all levels, in [illegible] effective programs for the problem areas of housing.

HOME LOAN BANK BOARD

The Home Loan Bank Board is composed of a bi-partisan group of three members and supervises the Federal Home Loan Bank System and the Federal Savings and Loan Insurance Corporation. The permanent agencies [illegible] to encourage thrift, promote home financing and to protect savings. The HLBB also directs the liquidating operations of the Home Owners' Loan Corporation, an emergency agency [illegible] to aid distressed home owners during the depression.

FEDERAL HOME LOAN BANK SYSTEM

Authorized in 1932 [illegible] the System provides a [illegible] home mortgage credit reserve for [illegible] savings and loan associations and other home-financing institutions.

[illegible] regional Federal Home Loan Banks are serving member home-financing institutions [illegible] both short and long-term advances to meet their [illegible]

Through the regional banks, funds may be shifted from areas of abundant credit to areas of scarcity. Since the establishment of the banks, they have advanced $[illegible] to member institutions, with advances of about $[illegible] outstanding as of June 30, 1947.

Member institutions of the System, June 30, 1947, numbered 3,[illegible]. Of these 3,[illegible] were savings and loan associations, insurance companies, and cooperative banks, including 1,4[illegible] Federal Savings and Loan Associations for which membership is mandatory, 25 savings banks, and 19 insurance companies. Assets of all member institutions amounted to approximately $[illegible] on June 30, 1947.

FEDERAL SAVINGS AND LOAN INSURANCE CORPORATION

Congress provided in 1934 for insuring accounts of investors in savings and loan associations and similar home financing institutions by creating the Federal Savings and Loan Insurance Corporation. Federal savings and loan associations were required to be insured. Insurance is optional for State-chartered associations. The public confidence inspired by the fact that investments are so safeguarded has produced a steady flow of funds into insured savings institutions. More than 5,000,000 investors in 2,[illegible] savings and loan associations with combined assets of over $[illegible] are now protected by insurance up to $5,000 each.

HOME OWNERS' LOAN CORPORATION

Over a period of three years beginning in June 1933, the Home Owners' Loan Corporation refinanced the mortgages of more than 1,000,000 homes, providing low-interest, long-term loans which gave distressed home owners a new chance to retain their properties. In these rescue operations approximately $3,500,000,000 was loaned to home owners, including the cost of repairs to properties and other disbursements of the Corporation.

More than 80 per cent of this investment has been liquidated through collections on the Corporation's loans and the sale of properties acquired by foreclosure, which it was obliged to undertake in [illegible] cases. [illegible] Although the HOLC [illegible] June 30, 1947, [illegible] Approximately [illegible] borrowers have paid off their mortgages in full ahead of maturity. [illegible] When liquidation is completed, the Corporation will be able to return to the United States Treasury all of its capital plus a moderate return.

FEDERAL HOUSING ADMINISTRATION

The Federal Housing Administration was established June 1934, by the National Housing Act "to encourage improvement in housing standards and conditions, to create a sound mortgage market and to provide a system of mutual mortgage insurance," a part of the program to help revive the construction industry and the home financing market. The FHA does not itself make loans but insures private lending institutions against loss on residential and property improvement loans meeting FHA standards.

The FHA revolutionized methods and procedures of home financing. In place of the short-term first, second and third mortgages with their high interest rates and renewal fees, it popularized the single, long-term amortized mortgage bearing a low interest rate. The maximum interest rate allowed on mortgages insured under Section 203, Title II, is 4½ per cent, while 4 per cent is the maximum under Section 207 of Title II and all of Title VI. Interest is computed on declining balances, as is the FHA insurance charge of ½ of 1 per cent. The premium is deposited in the appropriate insurance fund.

FHA operations have substantially improved the general quality of dwelling construction and of subdivision layouts. It set up nationwide building, location, and subdivision standards. To be eligible for FHA mortgage insurance, a home must meet such requirements as accessibility to employment centers, to transportation, schools, and shopping districts. As a result, residential neighborhoods have been established on a firmer basis.

Peacetime functions of the FHA are carried out under Titles I and II of the National Housing Act. Title VI was added as a war measure in March 1941, to help provide private housing temporarily meeting emergency war and post-war housing needs, but designed and built for permanence.

Title I provides for government insurance to lending institutions on loans for property improvement alterations and repairs. Most of these loans are limited to a maximum amount of $2,500 and a maximum term of three years, and are repaid through monthly installments. However, as part of the war and post-war emergency program, Congress authorized the FHA to increase from $2,500 to $5,000 the size of individual loans under this title, and with longer maturities, where operations would provide additional living accommodations for war workers, and now for veterans, through conversion of existing structures in areas specifically designated by the President.

Title II provides for insurance of mortgage loans ranging up to $16,000 on one-to-four family houses made by approved private lending institutions, and for monthly amortization of the loan over periods as long as 20 years. Such loans may cover either new or existing housing, but generally may not exceed 80 per cent of the property valuation. Where loans are for not more than $5,400, however, and cover new single-family, owner-occupied homes built under FHA inspection, the mortgage may be made for 90 per cent of the appraised value and may have an amortization period as long as 25 years. On new owner-occupied homes, valued at not more than $10,000, mortgages may cover 90 per cent of the first $6,000 of valuation and 80 per cent of the remainder up to a maximum mortgage of $8,600, with a maximum term of 20 years. Under Title II, the FHA also provides mortgage insurance for large-scale rental projects.

Title VI was added to the National Housing Act by Congress (March 1941) specifically to assist in providing housing for war workers. Insurance activity under the original title ended in September 1945. Most of FHA's operations during the war period were conducted under the new title. Mortgages insured under it were limited to a maximum of $5,400 on a single-family house; $7,500 on a two-family house; $9,500 on a three-family house; and $12,000 on a four-family house, and could cover up to 90 per cent of FHA valuation. Occupancy priority of these dwellings was reserved for eligible in-migrant war workers. Large scale rental housing projects for war workers were also insured under Title VI. Approximately 450,000 dwelling units for war workers were provided by mortgages insured under this Title, for which the total insurance authorization provided by Congress was $1,800,000,000.

Title VI was revived (May 1946) by the Veterans' Emergency Housing Act with substantially the same provisions and an additional authorization of $2,000,000,000. Instead of war workers, occupancy of the new housing financed under Title VI is limited to veterans and hardship cases. The former mortgage limitation of $5,400 on a single-family house may be raised as high as $8,100 by the FHA Commissioner in areas where construction costs have risen, on a two-family house from $7,500 to $12,500, on three-family properties from $9,500 to $15,750, and on a four-family from $12,000 to $18,000. The mortgages may be for up to 90 per cent of the FHA's estimate of the "necessary current cost" within these limitations. Large-scale housing mortgages also may be for up to 90 per cent of the "necessary current cost" with a maximum of $5,000,000 or $1,500 per room attributable to dwelling use (may be raised by the Commissioner to $1,800 in higher cost areas).

The Title VI authorization was further increased in June 1947 by $2,000,000,000, with an additional $200,000,000 on approval of the President, bringing the total possible under this Title to $4,200,000,000. Section 609 was added to provide insured loans to prefabricated housing manufacturing and Section 610 to provide insurance of mortgages executed in connection with the sale of government-owned permanent homes and housing projects meeting FHA requirements.

From its establishment in June 1934 through June 1947, FHA has insured under Titles I, II and VI a grand total of $10,346,879,706—all loans made by private financial institutions—and has assisted approximately 8,480,000 American families in obtaining better housing. This grand total includes 6,691,000 properties of all types (mostly single-family houses) repaired or improved with $2,720,996,000 of short-term loans insured under Title I; 1,330,000 dwellings (mostly single-family homes) built or bought with $5,655,952,000, of long-term mortgages insured under the normal provisions of Title II; and 459,000 dwelling units built or bought with $1,969,930,000 of mortgages insured under the war or veterans' emergency provisions of Title VI.

A large amount of these loans has been repaid; mostly with regular monthly installments—approximately $2,198,000,000 of Title I loans, $2,675,781,000 of Title II loans, and $539,318,000 of Title VI loans.

FHA's credit experience under its mortgage insurance program has been outstanding. Out of 1,330,000 small dwelling units financed with mortgages insured under Title II, only 4,067 properties have been foreclosed and turned over to FHA as of June 30, 1947. All have been resold. Since 1940 the FHA's income from its insurance premiums and investments has been sufficient to meet all operating expenses and to add substantial amounts to insurance reserves.

In addition to being self-supporting, the FHA has been able to declare several dividends under the participation provisions of the Mutual Mortgage Insurance Fund on certain groups of mortgages insured under Section 203 of Title II. Further dividends will be declared for other groups as they are justified by the accumulated equity balance.

PUBLIC HOUSING ADMINISTRATION

The Public Housing Administration was established on July 27, 1947 under the terms of the President's Reorganization Plan No. 3. It has the responsibilities and functions previously administered by the Federal Public Housing Authority. Its major activity is the low-rent and slum clearance program transferred from the United States Housing Authority. The agency administers the program of loans and annual contributions which enable local communities to provide decent housing at rents that low-income families can afford to pay. It also is responsible, under policies established by the HHFA Administrator, for the management of most public war housing and for the disposal of this housing as it becomes surplus to the needs of reconversion and demobilization.

In 1947, the PHA had four principal assignments. (a) Completing, under policies of the HHFA Administrator, a program of providing temporary housing for veterans by relocating and converting surplus war housing and military structures for re-use as veterans' temporary dwellings. (b) The management of public war housing during the period of reconversions and demobilization for distressed families of veterans and servicemen, for civilian employees of the War and Navy Departments and of private industries completing war contracts, and for distressed families dislocated or displaced as a result of the war or demobilization. (c) Carrying out the disposition of federally owned housing determined to be surplus to the above needs. (d) The administration of low-rent housing constructed under the U. S. Housing Act of 1937, the Emergency Relief Act, and the National Industrial Recovery Act.

The program of providing temporary emergency housing for veterans by relocating and converting surplus temporary structures is authorized by Title V of the Lanham Act, as amended by the Mead resolutions (December 1945 and March 1946). These resolutions authorized appropriations of $445,627,000 to pay the Federal cost of the re-use program and authorized the National Housing Agency (wartime predecessor of the Housing and Home Finance Agency) to transfer surplus facilities to educational institutions and communities able to convert them to veterans' housing at local expense. Additional appropriations of $35,500,000 were made in 1947 to complete the program.

A total of about 260,000 accommodations for veterans will be provided by this program, 181,000 of them at Federal expense. More than half of this housing is located at educational institutions for use by student veterans. By mid-1947, more than 85 per cent of the total program had been completed.

In addition to veterans accommodated by the relocation of surplus facilities, almost 300,000 veterans' and servicemen's families were living in public housing remaining at its wartime location at the end of June 1947. Such families accounted for about 50 per cent of all occupied war and low-rent housing units in programs administered by the PHA.

Before the outbreak of war interrupted construction of low-rent housing under terms of the U. S. Housing Act, local housing authorities in some 170 communities built 334 projects containing 105,600 units for low-income families formerly living in slum dwellings. Such housing has been predominantly urban, but a small number of farm housing units were constructed under a rural program started shortly before the war.

The total development cost of the pre-war low-rent projects was $483,000,000. Although the PHA is authorized to lend up to 90 per cent of the development costs, it has actually supplied only two-thirds of the long-term financing, as a result of the ability of local housing authorities to sell bonds on the private market at an interest saving. All loans from the PHA or private investors are being repaid in full, with interest, in accordance with established amortization plans.

To help keep rents within the means of low-income families, the PHA makes an annual contribution, or subsidy, which for the fiscal year 1947 totaled $5,612,387 or $4.56 per dwelling unit per month. Federal subsidy payments totaled $56,071,599 to June 30, 1947. This represents the entire cost to the Federal Government since the beginning of the low-rent program. In addition, the local community is required to make an annual contribution equivalent to at least one-fifth of the Federal contribution. This local contribution is made normally by exempting the projects from state and local taxes, as authorized by the United States Housing Act and state housing laws. The total housing built or authorized under the U. S. Housing Act as of June 30, 1947 comprised 216,779 dwelling units in 801 projects. Construction of 159 of these projects, comprising 21,210 dwelling units, was deferred during the war and they have not yet been put under construction.

During the period of demobilization and reconversion, the PHA has responsibility for the management of publicly owned war housing constructed during the war to house immigrant war workers and their families. War housing remaining under active management, either directly by the PHA, by local housing authorities, or by other agencies, includes about 391,000 family dwelling units, 17,971 dormitory units, and 13,000 units of stop-gap housing such as trailers and portable shelters.

When public war housing becomes surplus to the needs of veterans and demobilization, the PHA has responsibility for disposing of it in accordance with the policies laid down by the HHFA Administrator. As of June 30, 1947, some 441,000 units of such housing remained to be disposed of. These include about 231,000 temporary units, unsuitable for long-term use as housing. These must be removed by July 25, 1949, except where the Administrator of the Housing and Home Finance Agency, in consultation with the local communities, determines there is a longer need in connection with orderly demobilization; about 165,000 permanent units, some of which are of demountable construction and can be dismantled and re-erected at new locations, which will be sold to veterans, occupants and other private purchasers unless sold or transferred to other Federal agencies or state and local governments; about 37,700 family and dormitory units converted from existing structures during the war to house war workers, mostly under seven-year leases, and will be returned to private owners at the expiration of the lease term or sooner if the owners purchase the unexpired lease term; about 7,800 units of permanent housing constructed by the Defense Homes Corporation in the early defense period, these being sold to private purchasers.

The Public Housing Administration also plans to dispose of some 2,200 permanent units in three Greenbelt towns—Greenbelt, Md., near Washington, D. C.: Greenhills near Cincinnati, O.: and Greendale near Milwaukee, Wis. These projects were started during the depression by the Resettlement Administration as examples of planned suburban communities for moderate-income workers employed in nearby cities. They were transferred to the Farm Security Administration, and later, in 1942, to the predecessor of PHA, the Federal Public Housing Authority, for management and eventual disposal.

PRISONS AND CRIME CONTROL

By Benedict S. Alper
Division of Social Activities, United Nations

TRENDS IN PRISON POPULATION

At the end of 1946 there were 141,404 prisoners present in state and Federal prisons and adult reformatories. This figure represents an increase of 6,552 during the year, or about 5 per cent of the 134,852 prisoners in confinement at the end of 1945.

In view of the fact that 1946 was the first full post-war year, a comparison of 1946 with the war period is of significance. During the war years, the prison population decreased from an estimated 182,641 at the beginning of 1944, remained relatively constant during 1945, and then, for the first time, showed an appreciable increase in 1946. The decrease between 1940 and 1944, of course, reflects the induction into the armed forces of millions of males in the age groups which contribute most heavily to the prison population. During the latter part of 1945 and 1946, these men were returned again to civilian life, with a consequent rise in prison commitments.

It is likely, as well, that industrial displacement due to conversion back to production for civilian use, the shift in population which was the reverse of the mass movement into war industry beginning in 1940, plus the expected rise in the rate of criminal activity which has marked previous post-war periods, all contributed to the impetus given once more to the prison commitment rate.

New York, among other states, reported a slight downward dip in total prison population, but noted at the same time a rise in the figures for the upper teen ages, and a significant percentage increase among the reformatory age group of girls. Juvenile delinquency cases received by Children's Courts in New York State decreased 8 per cent in 1946, compared with 1945, but remained approximately 16 per cent higher than in 1938.

The number of juvenile offenders in Federal custody reached a higher point in the spring of 1946 than at any time since the inauguration of the Federal juvenile offenders program in 1938.

All jurisdictions, Federal, state, and local, reported a mounting per capita cost in their correctional systems, paralleling the general abrupt price rise with the abolition of price control. At the same time, the 48 hour, and even 40 hour week, became standard in more state institutions, reflecting gains which had long been prevalent in the industrial world. Higher salaries were needed to attract and hold personnel in a period marked by high employment; related fields like probation and teaching experienced similar difficulties in holding on to their good people.

THE "ALCATRAZ REVOLT"

The violence which marked the war period was not without its effect on prison populations. The most serious escape attempt in the history of the Federal Bureau of Prisons occurred at Alcatraz in May 1946, resulting in the death of two officers, three prisoners, and the injury of many. The revolt, engineered by six of the most desperate of the institution's intractable inmates, was frustrated at the outset by the failure to obtain the keys leading to the outside yard. The mass escape attempt and the ensuing gun battle ended in the surrender of the revolting prisoners after nearly two days of serious rioting. Indicative of the basic philosophy of the Federal Prison system, the Director reported that this tragic incident would not be permitted "to impair or handicap programs designed to rehabilitate the more hopeful offenders."

CORRECTIONAL PROGRAMS OF THE U. S. ARMY

On Dec. 31, 1946, the Army's total population of general court-martial prisoners, which reached a peak of almost 35,000 in October 1945, had dropped to less than 16,000. Of this number, some 11,000 were in disciplinary barracks and guard houses, less than 1,000 were still overseas, and almost 4,000 were in the custody of Federal penal and correctional institutions.

When the rehabilitation centers operated during the war were inactivated in May 1946, a total of 42,373 general military prisoners had been restored to active duty, about 50 per cent of all those committed. Only about 12 per cent are reported to have since committed further offenses and become military prisoners again.

The War Department's five-man Advisory Board on Clemency, established in June 1945 under civilian leadership, had reviewed over 27,000 cases during 1946 and recommended 84 per cent for some degree of clemency. In July 1946, the War Department established an Advisory Board of Parole under a civilian chairman and proceeded to modernize completely its release system, utilizing Federal probation officers for the first time for the supervision of Army parolees.

As the year drew to a close, the Army's correctional program was aimed at preparing general prisoners for return to civilian life, by means of vocational training and other programs of rehabilitation.

CORRECTIONAL PROGRAMS OF THE U. S. NAVY

The maximum number of men in confinement under the Corrective Services Division of the Navy exceeded 16,000, compared with a peacetime high of 200. Special emphasis was placed on restoration to duty through the exercise of clemency by the Secretary of the Navy. As a direct result of this correctional and rehabilitative program, approximately 75 per cent of all Navy general court martial prisoners confined during and immediately after hostilities were restored to active duty.

The end of 1946 saw the number of Navy prisoners still in confinement at one-quarter of the wartime peak. Of the number restored, more than two-thirds are reported to have satisfactorily completed probationary periods of six to 12 months and to have earned the right either to be restored to active duty or to be honorably discharged.

The wartime peak of 20 places of confinement for Naval court-martial prisoners was reduced to four, including a disciplinary barracks and a retraining command on each coast. Major offenders are transferred to the Federal Bureau of Prisons for the period of their confinement.

The Navy has developed in-service training for administrative and correctional officers, and civilian experts at key points help to guide the program. The increase in the number of offenders committed for civil (criminal) offenses from 5 per cent to 20 per cent reduces the percentage available for restoration to active duty and increases the percentage discharged to civilian life, thus causing Naval authorities to develop a broad program of shop and vocational training, closely integrated with the industrial works program.

A survey of a random group of 1,200 men restored to duty in March 1946, reports that three-quarters successfully completed their term of probation. This has encouraged the continuance into the first post-war year of the correctional program, developed during the war, of rehabilitation in order to return men to duty.

SURVEYS OF WARTIME RECORDS OF MEN IN THE ARMED SERVICES

During the year, surveys made in New Jersey and Illinois into the wartime records made by men with prior civilian criminal records, who had been inducted into the armed forces under a liberalized program which saw more than 80,000 (estimated) of such entrants, established that their behavior varied little from the general run of draftees. Army regulations, since 1878, had previously forbidden the induction of men with prior felony records. Of those accepted into the armed services under the new liberalized regulations, the percentage of those who won decorations, promotions, and good conduct awards, as well as the percentage of them who were court-martialled during their military careers, closely paralleled that of soldiers without previous criminal records. This finding has yet to be confirmed by a careful follow-up of a sample large enough to corroborate or deny these tentative conclusions. If confirmed, this fact would go far to disprove the necessity for incarcerating large numbers of serious law violators in large costly penitentiaries. Progressive penologists have long felt that the degree of security employed for all prisoners is too often determined by the highest common denominator required for the safe-keeping of the small number of hardened and desperate offenders. It is to be hoped that such a follow-up study will be of value to the armed forces and important as an item of general public interest as well.

THE COUNTY JAIL

The Federal inspection service of local jails, to determine their suitability for the housing of Federal prisoners awaiting trial, transfer, etc., had fully approved only 14 per cent and conditionally approved for emergency use only 11 per cent of the 3,127 county and city jails inspected since 1930. In Virginia, 97 per cent of local jails were rated unfit for detention of Federal prisoners, in Vermont 93 per cent, Michigan 85 per cent, Illinois 75 per cent, and Ohio 69 per cent. Only 30 per cent of all jails visited appeared to have improved, while 47 per cent seemed to have become worse. "Most local jails," reports the Federal Bureau of

Prisons, "continue to constitute a disgrace to our democracy."

PAROLE

The National Probation Association took an important step forward with the broadening of its interest to include parole as an additional field of activity. Parole has won increasing recognition as an instrument for helping the released prisoner to adjust again in the community, thus successfully discrediting the attacks, which reached their peak a decade ago, which were made whenever an ex-prisoner was arrested while on parole. It is not yet sufficiently well realized that 97 per cent of all sentenced prisoners are ultimately released: parole assures a continuing interest in the offender in his difficult days again in the community. The name of the organization is now officially changed to The National Probation and Parole Association.

CAR STEALING AND OTHER DEVELOPMENTS

Car stealing will not be so easy in 1948 as it was in 1947, with the passage in several cities of municipal ordinances making it illegal to leave ignition keys in automobiles parked on the streets or in unattended lots. Inconvenience is the penalty; the policeman noticing the keys takes them to the nearest station house where they may be called for by the owner. One year after such an ordinance was passed in St. Paul, Minn., the car theft rate decreased 65 per cent.

The Bureau of Prisons in Puerto Rico set a precedent for other progressive penal administrators when it instituted a procedure permitting "week-ends at home" for certain prisoners. To be selected for this furlough, a man must first have served a year of his sentence and must be a first offender with a good record. Particular preference is given to men, married or single, whose family ties are strong. The only condition exacted is that the prisoner must give his word of honor to return. It is reported that, of those released to date, all without exception had returned to the institution when their time was up.

The antique State Prison at Charlestown, Mass., long condemned as unhealthy and unsafe, was doomed by a law passed by the state legislature, which authorized the prison to be razed, and appropriated funds to start the building of a new institution.

The Department of Corrections in Missouri was established under the provisions of the new Constitution, resulting in the reorganization of the state's peno-correctional facilities into three divisions—Penal Institutions, Educational Institutions (for juvenile offenders), Probation and Parole. The act also provides for release on parole of any prisoner in a state correctional institution, except persons under sentence of death. With the abolition of the fee system for sheriffs, it is to be expected that the jails of this state will make progress during the period immediately ahead

New Jersey legislation established a centrally located state study center for children. This center, to provide complete diagnostic service to any governmental agency, "prior to the disposition of any case before it," had operated in 1946 as a branch of the State Hospital at Marlboro. This year saw its transfer to Allaire, in the former home of Arthur Brisbane, whose name is incorporated in the title of the institution.

Pennsylvania legislation now requires the establishment of a reception center of the type of Elmira, N. Y. (Judges in New York State no longer commit youths 16 to 21 years of age to a specific institution, but to Elmira, where they are studied and classified, and from which they are transferred to an appropriate institution for treatment.) Staffed with medical, psychiatric, educational and vocational personnel, in addition to the usual custodial officers, the Pennsylvania center will receive all young persons who are committed by the courts to any penal or reformatory institution in the state. The center will be located at what is now the State Industrial School at White Hill, near Harrisburg.

The American Prison Association distributed in 1947, a *Manual of Suggested Standards for a State Correctional System,* a publication long awaited, which was circulated to state legislators and others who have an interest in improving their correctional systems. The recognition of prison problems as of equal importance to that of other branches of state administration, is likewise recognized by the Penal Study Committee of the Ohio Post-War Program Commission, which rendered its final report early in the year. The report recommends not only the construction of new institutions and the modernization of old, but stresses also the value of probation and parole, and urges the recruiting of professional personnel, purely on a merit basis.

No state correctional system has made greater advances during the year than that of California, under progressive legislation passed in recent years, combining a Youth Authority and an Adult Authority in a Department of Correction under qualified professional administrators.

THE JUVENILE OFFENDER

In the field of public education into the causes of crime and for an understanding of effective ways of prevention and treatment, the New York Society for the Prevention of Crime rendered an outstanding service with its weekly broadcast, "I was a Convict," carried over a major network. This program, which received an award from Ohio State University for its educational value, focused attention away from the sordid and melodramatic aspects of the problem, though utilizing drama to focus attention on the causation of early delinquent behavior and the results of the neglect of such early manifestations on the development of adult criminal careers.

Georgia passed a law enabling boards of education in cities and towns of over 300,000 population to establish detention and instruction schools for mentally defective, delinquent, and dependent children. Massachusetts, Michigan, Mississippi and New Jersey, created legislative commissions to investigate child delinquency.

Mississippi established youth (juvenile) courts as divisions of the county or chancery court in each county, with jurisdiction over delinquent and neglected children. The judge of the youth court is also empowered to appoint youth counselors (the equivalent of probation officers) under the state merit system to investigate and supervise the cases of children under the jurisdiction of the court.

The trend toward higher age jurisdiction of the juvenile court was continued by New Jersey, with the raising from 16 to 18 years of the upper age limit of juvenile delinquency. All motor vehicle violations involving persons under 18, must now go before the juvenile court.

The first State Youth Commission, established in New York in 1945, to give financial aid to local communities on a matched funds basis for the creation of local youth bureaus, and to give assistance to localities in the establishment of recreation and related programs for young people, has led other states to pass legislation patterned after the New York law.

The reports of the National Conference on Prevention and Control of Juvenile Delinquency held in Washington last year, were published during 1947. State and local conferences, on the same subject, inspired by and patterned after the National Conference, were convened in several states. A continuing Committee of the National Conference functioned throughout the year for the stimulation of nationwide activity in the crime prevention field. The conviction grows that delinquency among juveniles is largely a product of local negligence or inadequacy and that it is at the local level that action must be taken to correct the development of criminal careers.

XV. SOCIAL PROBLEMS AND CONDITIONS

PERIODICAL PUBLICATIONS

American Childhood
74 Park St., Springfield, Mass.

American Journal of Psychiatry
9 Rockefeller Plaza, New York City.

American Journal of Public Health
American Public Health Association, 1790 Broadway, New York 19, N. Y.

American Journal of Sociology
5750 Ellis Ave., Chicago, Ill.

American Sociological Review
U. S. Dept. of Agriculture, Washington, D. C.

American Sociologist
68 Faculty Exchange, Washington University, St. Louis, Mo.

Annals, The
American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia.

Boy's Life
Boy Scouts of America, 2 Park Ave., New York City.

Child, The
Children's Bureau, United States Department of Labor, Washington 25, D. C.

Compass
American Association of Social Workers, 130 East 22 Street, New York 10, N. Y.

Family, The
Family Welfare Association of America, 122 East 22 Street, New York 10, N. Y.

Housing Yearbook
National Association of Housing Officials, 1313 East 60 Street, Chicago 37, Ill.

Journal of Home Economics
Mills Bldg., Washington, D. C.

Journal of Social Hygiene
1790 Broadway, New York City.

Mental Hygiene
National Committee for Mental Hygiene, 1790 Broadway, New York 19, N. Y.

Proceedings of the National Conference of Social Work
82 North High Street, Columbus 15, Ohio.

Public Welfare
American Public Welfare Association, 1313 East 60 Street, Chicago 37, Ill.

Social Forces
University of North Carolina, Chapel Hill, N. C.

Social Security Bulletin
Social Security Board, Federal Security Agency, 1825 H Street, N.W., Washington 25, D. C.

Social Service Review
University of Chicago, Chicago, Ill.

Social Studies
809-11 North 19th Street, Philadelphia.

Social Work Year Book
Russell Sage Foundation, 130 East 22 Street, New York 10, N. Y.

Survey Graphic
Survey Midmonthly, Survey Associates, Inc., 112 East 19 Street, New York 3, N. Y.

Yearbook
National Probation Association, 1790 Broadway, New York 19, N. Y.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

PUBLIC SOCIAL WORK AND WELFARE

AMERICAN PUBLIC WELFARE ASSOCIATION, 1313 East 60 Street, Chicago 37, Ill.

FEDERAL SECURITY AGENCY, Social Security Building, Washington 25, D. C.

PRIVATE SOCIAL WORK

AMERICAN ASSOCIATION OF SOCIAL WORKERS, 130 East 22 Street, New York 10, N. Y.

AMERICAN ASSOCIATION OF SCHOOLS OF SOCIAL WORK, 1313 East 60 Street, Chicago 37, Ill.

AMERICAN FEDERATION OF INTERNAtional Institutes, 11 W. 42nd Street, New York 19, N. Y.

American National Red Cross, 17th between D and E Streets, Washington 13, D. C.

Child Welfare League of America, 130 East 22 Street, New York 10, N. Y.

Community Chests and Councils, Inc., 155 East 44 Street. New York 17, N. Y.

Council of Jewish Federations and Welfare Funds, 165 West 46 Street, New York 19, N. Y.

Family Welfare Association of America, 122 East 22 Street, New York 10, N. Y.

International Migration Service, American Branch, 122 East 22 Street, New York 10, N. Y.

National Board, Young Women's Christian Associations of the United States of America, 600 Lexington Avenue, New York 22, N. Y.

National Catholic Community Service, 350 Fifth Ave., New York City.

National Catholic Welfare Conference, 1312 Massachusetts Avenue, N.W., Washington 5, D. C.

National Conference of Catholic Charities, 1317 F Street, N.W., Washington 4, D. C.

National Conference of Jewish Social Welfare, 108 W. 43 Street, New York 19, N. Y.

National Conference of Social Work, 82 North High Street, Columbus 15, Ohio.

National Council, Young Men's Christian Associations of the United States of America, 347 Madison Avenue, New York 17, N. Y.

National Federation of Settlements, 147 Avenue B, New York 9, N. Y.

National Institute of Immigrant Welfare, 11 West 42 Street, New York City.

National Jewish Welfare Board, 145 East 32 Street, New York 16, N. Y.

National Publicity Council for Health and Welfare Services, 130 East 22 Street, New York 10, N. Y.

National Recreation Association, 315 Fourth Avenue, New York 10, N. Y.

National Social Work Council, 1790 Broadway, New York 19, N. Y.

National Travelers Aid Association, 425 Fourth Avenue, New York 16, N. Y.

National War Fund, 46 Cedar Street, New York 5, N. Y.

Salvation Army, 120 West 14 Street, New York 11, N. Y.

United Seamen's Service, 39 Broadway, New York 6, N. Y.

United Service for New Americans, 105 Nassau Street, New York 13, N. Y.

HOUSING

National Association of Housing Officials, 1313 East 60 Street, Chicago 37, Ill.

National Housing Agency, Fourth St. & Independence Ave., S.W., Washington, D. C.

PRISONS AND CRIME CONTROL

American Bar Assn., 1140 N. Dearborn St., Chicago, Ill.

American Civil Liberties Union, 170 Fifth Ave., New York City.

American Council of Learned Societies, 1219 Sixteenth Street, N.W., Washington, D. C.

American Institute of Criminal Law and Criminology, 357 E. Chicago Ave., Chicago, Ill.

American Law Institute, 3400 Chestnut St., Philadelphia, Pa.

American Parole Association, 135 East 15 Street, New York 3, N. Y.

American Prison Association, 135 East 15 Street, New York 3, N. Y.

National Committee on Prisons and Prison Labor, 1108 Sixteenth Street, N.W., Washington 6, D. C.

National Jail Association, 135 East 15th Street, New York 3, N. Y.

National Probation Association, 1790 Broadway, New York 19, N. Y.

National Society of Penal Information Inc., 114 E. 30th St., New York City.

Osborne Association, 114 East 30 Street, New York 16, N. Y.

Society for the Prevention of Crime, 122 East 22 Street, New York 10, N. Y.

Women's Prison Assn., 110 Second Ave., New York City.

CHILD WELFARE

Boy Scouts of America, 2 Park Avenue, New York 16, N. Y.
Boys' Clubs of America, 381 Fourth Avenue, New York 16, N. Y.
Camp Fire Girls, Inc., 88 Lexington Avenue, New York 16, N. Y.
Child Welfare League of America, 130 East 22 Street, New York 10. N. Y.
Girl Scouts, 155 East 44 Street, New York 17, N. Y.
National Child Labor Committee, 419 Fourth Avenue, New York 16, N. Y.
National Society for Crippled Children of the United States of America, 314 Masonic Temple, Elyria, Ohio.

HEALTH

American Public Health Association, 1790 Broadway, New York 19, N. Y.
American Social Hygiene Association, 1790 Broadway, New York 19, N. Y.
National Committee for Mental Hygiene, 1790 Broadway, New York 19, N. Y.
National Health Council, 1790 Broadway, New York 19, N. Y.
National Organization for Public Health Nursing, 1790 Broadway, New York 19. N. Y.
National Society for the Prevention of Blindness, 1790 Broadway, New York 19. N. Y.
National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.

FOUNDATIONS

Carnegie Endowment for International Peace, 405 West 117th St., New York City.
Carnegie Foundation, The, 522 Fifth Ave., New York City.
Commonwealth Fund, 41 East 57 Street, New York 22, N. Y.
General Education Board, 49 West 49 Street, New York 20, N. Y.
Guggenheim Foundation, 551 Fifth Ave., New York City.
Hall of Fame for Great Americans, New York University, University Heights, New York City.
Milbank Memorial Fund, 40 Wall Street, New York 5, N. Y.
Moro Educational Foundation, 475 Fifth Ave., New York City.
Rockefeller Foundation, 49 West 49 Street, New York 20, N. Y.
Rockefeller Institute for Medical Research, York Ave. and 66th St., New York City.
Roosevelt Memorial Assn., 28 E. 20th St., New York City.
Rosenwald Fund, 4901 Ellis Avenue, Chicago 15, Ill.
Russell Sage Foundation, 130 East 22 Street, New York 10, N. Y.
Twentieth Century Fund, 330 West 42 Street, New York 18, N. Y.
Woodrow Wilson Foundation, The, 45 E. 65 Street, New York City.

SOCIAL AGENCIES

American Assn. of University Women, 1634 I St., N.W., Washington, D. C.
American Nurses Assn., Inc., 1790 Broadway, New York City.
American Woman's Assn., 111 E. 48th St., New York City.
General Federation of Women's Clubs, 1734 N St., N.W., Washington, D. C.
Girls Service League of America, 138 East 19th St., New York City.
National Association of Women Artists, 42 W. 57th St., New York City.
National Council of Women of the U. S., Inc., 501 Madison Ave., New York City.
National Federation of Business and Professional Women's Clubs, 1819 Broadway, New York City.
National League of Women Voters, 726 Jackson Place, Washington, D. C.
Woman's Roosevelt Memorial Assn., Roosevelt House, 28 E. 20th St., New York City.
Women's Educational and Industrial Union, 264 Boylston St., Boston, Mass.
Women's Trade Union League, 247 Lexington Ave., New York City.

DIVISION XVI

LABOR AND LABOR LEGISLATION

LABOR CONDITIONS AND LEGISLATION

By Witt Bowden
Bureau of Labor Statistics, Department of Labor

GENERAL

During the first half of 1947, labor unions were largely concerned with efforts to prevent the enactment of restrictive labor legislation; during the second half of the year, a major union interest was the interpretation, testing, and ultimate repeal of the Federal Labor Management Relations Act and of restrictive state laws. Not all of the 1947 labor laws were viewed by labor as unfavorable; state workmen's compensation acts and related measures in particular were materially strengthened and liberalized as to benefits. Industrial relations acts, however, were bitterly opposed by unions because of such provisions as those requiring new qualifications for rights of representation, bargaining, and prosecution of unfair practices; restricting the right to strike; forbidding or limiting union security (especially the closed shop); prohibiting various forms of political activity; and permitting damage suits and injunctions in labor disputes.

Economic conditions were favorable for collective bargaining; rising prices and the strong demand for labor enabled unions, especially before the new Federal act became operative on Aug. 22, to renew or extend their agreements on relatively favorable terms with few important work stoppages. At the same time, rising prices outran the advance in wages and caused grave concern for the maintenance of living standards. Employment remained stable at unprecedentedly high peacetime levels, but labor leaders repeatedly charged that adequate employment and production were menaced by what they viewed as excessive prices and profits and the ultimate dissipation of market demand for goods and services by the inflationary loss of mass purchasing power. Unions intensified their organizing activities, especially in the South, and made small gains in membership. The major change in affiliations was the withdrawal of the United Mine Workers from the American Federation of Labor. Restrictive labor legislation at home and critical conditions abroad intensified the interest of union circles in political and international problems beyond the traditional fields of trade-union policy.

TAFT-HARTLEY LABOR ACT

The event of outstanding interest in the labor world in 1947 was the passage of the Labor Management Relations Act, commonly known as the Taft-Hartley Act. Finally passed over the President's veto on June 23, the act was noteworthy for the prolonged and bitter controversies occasioned by it, the radical changes it made in the legal status of unions, and the extension of public authority in the field of labor-management relations. The significance of the law can be evaluated only in a tentative manner pending full administrative reorganization, interpretation by administrative agencies and the courts, and the crystallizing of union and employer attitudes and policies. Noted herein are only the more important provisions of the exceptionally elaborate act.

AMENDMENT OF NATIONAL LABOR RELATIONS ACT

The New NLRB.—The National Labor Relations Board was enlarged from three to five members. The Board members were deprived of certain administrative and research functions usually performed by similar agencies such as the Federal Trade Commission. A General Counsel, nominated by the President, was given final authority for investigating and prosecuting all unfair labor practice cases and authority over the Board's field personnel.

Redefinition of Unfair Labor Practices.—The act redefined unfair labor practices by employers. Thus, the Board can not consider an alleged anti-union statement as unfair unless it involves a threat or an offer of gain; and complaints must be filed within six months, with a copy served on the employer. Practices by employers are defined as unfair if they limit the rights of non-union employees. In this connection, the closed shop is prohibited, except in cases of agreements previously made. The union shop (permitting the hiring of non-union workers but requiring them to join the union) is authorized only if the union has bargaining rights and if a majority of all eligible workers so vote. No union security agreement is authorized if forbidden by state law. A voluntary checkoff of union dues is permitted, for one year, if authorized in writing by the individual workers. These and related restrictions on unions, such as the exercise of restraint or coercion to influence workers, and the provision that workers may deal individually with employers in regard to complaints, were designed in part to strengthen the position of employees who may prefer, in employer terminology, to maintain their "right to work," or in union terminology, to obtain a "free ride" without sharing union responsibilities.

Various labor practices by unions were defined as unfair. These include restraint, coercion, or discrimination against non-union employees (involving questions, for example, of picketing); refusal to bargain collectively; requiring fees viewed by the NLRB as excessive; requiring payment for services not rendered; and engaging in certain jurisdictional and sympathy strikes and boycotts.

New Restrictions on the Right to Strike.—The definition of the term "strike" is enlarged to include a "concerted slow-down or other concerted interruption of operations by employees." In addition to limitations on jurisdictional and sympathy strikes, the general right to strike is restricted by "cooling-off" provisions. A 60-day notice of termination of an agreement is required. Employees who strike during that period lose their status and rights under the act unless rehired. Within 30 days after the original notice has been served, the party desiring termination of the agreement must notify the appropriate Federal and state mediation agency if no agreement has been reached. Participation in strikes by Federal employees is prohibited. Additional restrictions on the right to strike are discussed later in connection with "national emergencies."

New Union Qualifications and Board Procedures.—New qualifications are required of unions for obtaining recognition and collective bargaining rights and the right to petition against unfair practices. A union, in order to obtain legal status with the NLRB, must annually supply its members and the Government with detailed financial, organizational, and operating data. Every official of a local, national, or international union must file annually the so-called non-Communist affidavit. Prohibitions or limitations are imposed on the representation and collective bargaining rights of supervisors, professional employees, and plant guards. An employer may petition for an election at any time after a union has claimed a majority and demanded recognition. The new law simplifies the procedures by which dissenting groups of employees and groups not affiliated with national or international unions may obtain representation for bargaining and a hearing in unfair labor practice cases.

The act radically changes the procedures for prevention of unfair labor practices. A union is bound by the acts of its agents as defined by the courts. Unions are subject to court action for failure to observe the Board's "cease and desist" orders. The Board may apply for injunctions in cases of unlawful boycotts and jurisdictional strikes and in emergency cases pending its decision. Employers may sue for damages, and, notably in cases of violation of "no-strike" contracts, may apply for injunctions.

CREATION OF FEDERAL MEDIATION AND CONCILIATION SERVICE

The Labor Management Relations Act discontinued the Conciliation Service in the Department of Labor and set up an independent Federal Mediation and Conciliation Service, operating nationally except in the field of transportation, still subject to the National Mediation Board. The new agency was directed to limit its work to disputes which it might view as threatening a "substantial" (not a "minor") interruption of commerce. It is also directed to offer its services in grievance disputes, as distinguished from the making or renewal of agreements, "only as a last resort and in exceptional cases."

The new agency obtains information regarding disputes by the requirement that it must be notified 30 days before the termination of agreements. The Board may intervene on its own initiative as well as upon request by a party to the dispute. If conciliation fails, the Service may go so far as to submit to the employees the employer's last offer, for a secret-ballot vote.

Supplementing the work of the new agency is a labor-management panel, appointed by the President. Its 12 members, serving in an advisory capacity, represent labor and management in equal numbers.

HANDLING OF "NATIONAL EMERGENCIES"

In cases of work stoppages on a national scale affecting such vital commodities or services as coal, railroad transportation, and essential utilities, there was general recognition of the need for special preventive measures. The new act defined such a situation as a "national emergency" in the sense of an actual or threatened work stoppage "affecting an entire industry or a substantial part thereof engaged in trade, commerce, transportation, transmission, or communication" or "engaged in the production of goods for commerce," which would "imperil the national health or safety."

An elaborate procedure was prescribed. The President was authorized to appoint a special board of inquiry and upon receiving the board's report to direct the Attorney General to petition for an injunction without regard to the Norris-La Guardia Anti-Injunction Act. The board of inquiry would make a further report to the President within 60 days after the issue of an injunction, and the parties in the meantime would be required to confer with the mediation officials. Within 15 days after the report by the board of inquiry, the NLRB would take a vote of employees on acceptance of the employer's final offer. Within the next five days, the injunction would be vacated, and, in case of no settlement, the President would report to Congress.

SUPPLEMENTARY PROVISIONS OF LABOR MANAGEMENT RELATIONS ACT

Two additional provisions of the Labor Management Relations Act have special significance. One of these is designed to curb political activities. The act prohibits either expenditures or contributions by unions or corporations in connection with Federal elections, primaries, caucuses, or conventions. Officials who consent to such actions are subject to fine or a year's imprisonment or both. This provision has a special bearing on efforts to secure the repeal or amendment of the act by influencing the election of members of Congress. Another provision set up a joint Congressional committee for the continuing study of various phases of labor-management relations. A major function is the study of Federal labor law administration.

UNION REACTIONS TO NEW FEDERAL POLICY

The opposition of unions to the Labor Management Relations Bill proving ineffective, the unions undertook in the first instance, between the enactment of the bill in June and its effective date on Aug. 22, to conclude collective agreements which would at least defer the application of important provisions of the act. Large numbers of contracts were negotiated for two or more years. Closed-shop or union-shop provisions were included in a majority of the new contracts. Many unions, including the United Mine Workers, succeeded in eliminating no-strike clauses from their agreements and limiting their liabilities under the damage-suit clauses of the act.

Employers were generally disposed to proceed cautiously in asserting their rights under the law; the high levels of profits, production, and demand for workers gave unions certain bargaining advantages which tended to defer a real test of the act. Caution on the part of employers was also actuated by uncertainties as to the interpretation and administration of the act.

Many unions declared their intent to challenge the constitutionality of vital provisions of the act and to seek its early repeal, but caution characterized the acts of unions as well as employers. An outstanding instance of refusal to conform to the law as commonly understood was the decision of the International Typographical Union (AFL) not to sign agreements with employers. For the purpose of maintaining the prevailing closed-shop arrangements, the union proposed to post the terms under which its members would work. The union, as a result, was charged by the NLRB with an unfair labor practice, namely, a refusal to bargain collectively. Certain local damage suits were also brought against the union. A major premise in the action of the union was the unconstitutionality of the act.

Another area in which unions generally challenged the constitutionality of the act as commonly understood was in the field of political activity. The unions declared it to be their intention to defeat Congressional proponents of the act. To that end, union journals publicized their opposition to those who voted for the bill; union officials took an active part in elections to fill vacancies; and the AFL, the CIO, the railroad brotherhoods, and various individual unions undertook to obtain extensive contributions and organize educational and political activities for the avowed purpose of electing men who would favor the repeal of the act.

One of the most perplexing of the early problems confronted by the unions was the signing of the non-Communist affidavit, a prerequisite for maintaining legal status with the NLRB. This was particularly important for unions whose collective-bargaining rights were challenged either by employers or by other groups of workers. It was necessary, also, if a union was to obtain a Board hearing on a charge of unfair labor practices. Union officials were unanimous in the view that the affidavit requirement is discriminatory and unconstitutional, but practical considerations led to the extensive signing of the affidavit. The president of the United Mine Workers, who was also a member of the AFL Executive Council, refused to sign, and his action barred the 1,390 local trade and Federal unions directly chartered by the Federation from qualifying under the act. A fight in the November convention led to a constitutional amendment which deprived the members of the Executive Council of the title of officer. Noteworthy among major unions whose officials refused to sign the affidavit were the United Mine Workers and the United Steelworkers, both presumably strong enough to maintain their status without resort to the NLRB. The Chairman of the Board stated in December that compliance by major unions was proceeding so rapidly that failure to comply will hardly pose many further problems for the Board.

STATE LAWS AFFECTING LABOR

The focal point of interest in the field of labor legislation was the Federal Labor Management Relations Act. That measure, however, had the interstate commerce limitations of Federal authority; and it had been preceded by a number of somewhat similar state restrictions on unions. The Federal act recognized state legislation by declaring that no union security agreement is authorized if in violation of a state law, and by providing that the NLRB might empower state agencies to take jurisdiction over certain cases "even though such cases may involve labor disputes affecting commerce," unless the state laws are inconsistent with the Federal law. The act also directed the Federal Mediation and Conciliation Service to give priority to state or other conciliation services when available in disputes having only a minor effect on interstate commerce.

STATE ACTION IN INDUSTRIAL RELATIONS

Among the 44 states holding regular legislative sessions in 1947, action of some nature was taken by 30 states in the field of industrial relations. Not all of these measures included restrictive or prohibitory policies, but most of them reflected a desire to limit the freedom of action of labor organizations. New laws or amendments in 14 states prohibited or limited closed-shop, union-shop, or union-security arrangements, but regulations of this nature were adopted only in states with relatively small industrial employment; six of the states are in the South. Picketing or other strike activities were subjected to new regulations in 12 states, but only in Michigan and Pennsylvania among the major industrial states. Pennsylvania, California, and nine other states prohibited secondary boycotts. Attempts were made to restrict jurisdictional disputes in six states. Special provisions for handling disputes in public utilities were adopted in 11 states. Public employees in six states were denied the right to strike; these were the comparatively large states of Michigan, Missouri, New York, Ohio, Pennsylvania, and Texas. In three states (Delaware, New Hampshire, and North Dakota), unions were required to register and make financial reports.

WORKMEN'S COMPENSATION AND OTHER STATE MEASURES

Outside of the field of labor-management relations, probably the most important state legislation of 1947 concerns workmen's compensation. Laws in that field were passed by 39 states. Outstanding progress was made, particularly in the increasing of disability benefits and benefits to survivors. Increases recognizing in some degree the advances in wages and cost of living were granted in 22 states. Occupational-disease laws were enacted for the first time in six states, bringing the total to 39 states. The coverage of persons and employments was increased in four states, with compulsory instead of elective provisions in two additional states. Five states increased the amount or duration of medical aid.

In the field of child labor, a noteworthy change in Connecticut establishes standards for child labor in agriculture. That state also passed a comprehensive anti-discrimination law. In two states, equal-pay laws were enacted on behalf of women. Several states made changes in their regulations relating to industrial health and safety.

NATIONAL LABOR RELATIONS BOARD

It was widely recognized that the new labor relations acts, both Federal and state, would require a long period of administrative and judicial interpretation, especially in view of the raising of basic questions of constitutionality. The adjustment of administrative jurisdictions will also require much time, as in the relations between the Board members and the General Counsel of the NLRB and between Federal and state agencies. The functioning of the reorganized Board and of the new Federal Mediation and Conciliation Service proceeded gradually because of the new and complex nature of their authority and the lull in crucial labor disputes.

An instance of administrative problems under the law was the handling of affidavits of non-Communist affiliation. The Board's General Counsel ruled that officials of parent bodies, such as the AFL and the CIO, must sign the affidavit before any affiliated union could acquire legal status before the Board. On Oct. 7, the Board overruled the General Counsel and held that failure of these top officials to sign would disqualify only the local unions that are affiliated directly with the general organization (such as the AFL Federal unions) and not with an intermediate national or international union. The ruling applied only in representation cases, but the General Counsel accepted it also in unfair labor practice cases.

Various rulings by the Board, or its General Counsel, progressively narrowed the legal status, before the Board, of unions not qualifying under the registration and affidavit provisions of the law. A noteworthy instance was a decision that petitions for Board elections for representation made before Aug. 22 could not be recognized for noncomplying unions. Another decision declared that a noncomplying union which had won a representation election but had not actually been certified before Aug. 22 as representing its members for collective bargaining would be denied certification. Another significant ruling, on Dec. 2, barred noncomplying unions from Board elections for representation even though an employer files a petition in support of the union's claim.

During the first three months of the operation of the law (to Nov. 22), more than 2,500 cases were filed, the number increasing rapidly after the middle of October. About 60 per cent of the cases were petitions for elections to choose a bargaining representative or to authorize a union-shop. In union-shop elections held by Nov. 22, more than 90 per cent of eligible voters cast their ballots and more than 90 per cent of those voting favored union security. About 200 charges of unfair labor practices were filed against unions by employers or individuals. Some of the new provisions regarding injunctions in labor disputes for unfair practices by unions were tentatively used but not finally tested; the injunction procedure for national emergencies was not invoked.

DEPARTMENT OF LABOR

One of the limited functions of the Department of Labor in administering the Labor Management Relations Act, the handling of union registration data, was assigned to the Union Registration Branch of the Division of Labor Standards. Registration forms, made available on Aug. 6, were extensively but not universally filed by unions. To the Bureau of Labor Statistics of the Department of Labor was assigned the functions of maintaining a file of collective agreements and related data and of supplying nonconfidential data and factual information to aid in the settlement of labor disputes, functions which had normally been exercised by that agency.

MEDIATION AND CONCILIATION SERVICE

The work of the Federal Mediation and Conciliation Service developed gradually, partly because of the lull in labor disputes and partly because of the need to develop cooperative arrangements with non-Federal agencies. At a conference with state agencies late in November, the Director of the Federal agency deplored the occasional conflicts in jurisdiction and stated that regional directors of his agency had been given authority to make arrangements for determining jurisdiction in local areas.

COURT ACTIONS ON NEW LAWS DEFERRED

The far-reaching nature of state and Federal labor legislation in 1947 requires a thoroughgoing change in judicial as well as administrative actions affecting labor. Earlier decisions are vitally affected, and much time must elapse for the judicial interpretation of the new laws. Actions by the courts in 1947 were few and largely tentative and preliminary.

THE SUPREME COURT AND THE UNITED MINE WORKERS

An outstanding Supreme Court case was that of the United Mine Workers, March 6, 1947, preceding the enactment of the new Federal law. The United Mine Workers Union and its president had been cited for contempt on Nov. 21, 1946 by the Federal District Court of the District of Columbia, for refusal to obey a temporary restraining order to prevent the union from ending its 1946 agreement with the Government. The defendants, on Dec. 4, were adjudged guilty and fined, and the restraining order was made a preliminary injunction.

On March 6, 1947, the Supreme Court, by a split decision, upheld the contempt citation, and ruled: (1) that the Norris-LaGuardia and Clayton acts, in limiting the Federal courts in the issuing of injunctions in labor disputes, are not applicable to a dispute between the Federal Government and its employees; (2) that under the existing union agreement, the coal-mine employees were government employees; and (3) that, in any event, the Federal District Court had authority to issue a restraining order to preserve existing conditions while it was considering its authority to issue an injunction, and that failure to obey the restraining order was punishable as criminal contempt. The Court stated, however, that the fine imposed was excessive.

The decision was described by the AFL Executive Council as "the outstanding labor case of the twentieth century" and as "one of the most ignominious decisions ever announced." Criticism was based largely on the view that the decision meant a reversion to "government by injunction."

PORTAL-TO-PORTAL PAY: COURT ACTION AND A NEW LAW

The Supreme Court, in the Mt. Clemens Pottery case (the "portal-to-portal" case), June 1946, had interpreted the Fair Labor Standards Act in a manner that recognized many of the claims of workers to pay for travel time or for "preliminary" or "postliminary" time spent other than at the machine or usual place of work. Previously, travel time in mines had been defined by the court as working time and therefore compensable. About 1,900 suits on file in May 1947 had been brought by unions and individuals for "portal-to-portal" pay, including back pay, and some employers expressed alarm as to their liabilities.

The Portal-to-Portal Act of May 14, 1947 redefined and limited the liability of employers under the Fair Labor Standards Act and also under the Walsh-Healey and Davis-Bacon Acts. It provided for the dismissal or compromise settlement of portal-to-portal suits brought before May 14, 1947. The new law also established a two-year limitation for the filing of all wage claims after May 14, and in some instances limited claims covering the period before that date to two years or less. New guides were prescribed for the administration of the three acts, especially the Fair Labor Standards Act. Particularly important guides were (1) the exemption of employers from liability for payment for "preliminary" or "postliminary" activities unless compensable under contract, custom or practice, and (2) the granting to employers of a "good faith" defense.

The Portal-to-Portal Act so vitally affected the work of the Wage and Hour Division of the Department of Labor that it became necessary to replace earlier interpretations. On Nov. 18, 1947, the Administrator issued an interpretative bulletin containing a general statement as to the effect of the new law on the Fair Labor Standards Act. The bulletin was issued as "a practical guide to employers and employees," but it was pointed out that the correctness of an administrative interpretation can finally be determined only by the courts.

LABOR-MANAGEMENT DISPUTES

Decline in Work Stoppages.—Work stoppages had been restricted during the war for the most part to unauthorized or "wildcat" strikes. The flood of post-war stoppages, beginning in September 1945, continued through May 1946, reaching its peak in February, when idleness of workers directly involved in strikes totaled 22,900,000 man-days, or 4.2 per cent of estimated working time. By June 1946, idleness had fallen to 0.75 per cent of working time.

During the 12 months from November 1946 to October 1947, the number of work stoppages beginning in the month ranged from 168 in December to 480 in April; the number of workers directly involved in stoppages beginning in the month ranged from 630,000 in April to 60,000 in October; and man-days idle in stoppages in effect during the month ranged from 1.2 per cent of total working time in April to 0.2 per cent in October and also in January to March. From 1935 to 1939, man-days idle averaged 0.3 per cent of total working time. Thus, in 1947 strike activity was substantially comparable in its average effect on man-days of idleness to the prewar situation.

Causes of the Decline in Strikes.—The high tide of early post-war work stoppages resulted from the unusual tensions of wartime and post-war readjustments. These included the effects of industrial, occupational, and regional shifts in employment; reductions in real weekly earnings; conflicts attending the resumption of normal collective bargaining when wage and price controls were being relaxed; and the uncertainties of the reconversion period. The decline in strike activity late in 1946 and in 1947 may have been influenced by the preoccupation of unions with state and Federal labor legislation but it was primarily a result of the easing of post-war tensions and the substantial progress in collective bargaining.

Major Strikes.—There were few important work stoppages during 1947. A strike of exceptional nature was that of teachers in Buffalo, N. Y., from Feb. 24 to March 3, ended by assurances of increased salaries for 1947-48. A telephone strike beginning April 7 continued for more than a month. Wage increases were granted, but union demands for nationwide or industry-wide bargaining were denied. Workers in bituminous-coal mines refused to return to the mines after a vacation period until agreement was reached, early in July, on the terms of a new contract. Late in June. walkouts began in many of the east-coast stripyards, notably the Bethlehem Company's yards. At the peak, about 75,000 workers were involved. Final settlements were not made until Nov. 10. The strike was particularly noteworthy because it occurred in one of the few industries which experienced slack post-war employment, entailing a relatively weak bargaining position for workers.

EXTENT OF "PACKAGE PATTERN" WAGE AGREEMENTS

The slight extent of work stoppages in 1947 is an indication of the success of workers and employers in the peaceful renewal or extension of collective agreements. An agreement on March 22 between the United Rubber Workers and the "Big Four" rubber companies averted a major strike threat by an increase of 11.5 cents in basic wages. This basic-wage "pattern," with certain "fringe" adjustments, was soon adopted in various other factory industries, including electrical goods, steel, automobiles, and farm implements. Thus, the agreement of April 20 between the United Steelworkers and the United States Steel Corporation embodied the "package pattern" of approximately 15 cents, a basic wage increase of 12.5 cents per hour, supplemented by additional vacation pay, reduction or removal of regional and plant inequalities, and a new severance pay plan.

Agreements in most of the manufacturing industries provided for increases somewhat smaller than the 15-cent "package pattern"; the rise in factory hourly earnings between March (when the rubber workers obtained their increase) and October was about 8 cents per hour. The fact of major significance, however, was the settlement of disputes in most industries by peaceful collective bargaining.

Wage gains in most of the trade and service industries were comparatively small. In retail trade, for example, the advance in hourly earnings between March and October, although larger than in most of these industries, was only 5.5 cents. The highly organized railroad workers obtained an increase of 15.5 cents, with the exception of some relatively small groups whose negotiations were still pending at the end of the year. The largest increase of the year was obtained in the almost completely organized bituminous-coal industry in the agreements of early July.

BITUMINOUS-COAL AGREEMENTS

Coal-mine workers obtained in July a phenomenal advance of 44.5 cents per hour in straight-time earnings, the same pay for eight hours underground as previously received for nine hours and in addition a "wage pattern" increase of 15 cents per hour. The 5-cent payment per ton to the miners' welfare fund was raised to 10 cents. Safety provisions and other gains in the 1946 contract were continued. A clause was inserted for the purpose of relieving the union of damage-suit liability for unauthorized walkouts.

The miners' gain in basic rates was offset in part by the surrender of premium pay, except for work on Saturday as the sixth consecutive day, that is, for work after 40 hours per week; under the previous 9-hour day, premium pay had been received for work beyond 7 hours per day or 35 hours per week. The rise in gross hourly earnings was therefore much smaller than the rise in rates. The exceptional rise in rates was explained on the basis of the reduction of premium pay, the long-deferred reduction in hours, the manpower problems of the industry, the specialized skills (now in strong demand but surplus at low levels of production), the special hazards and the arduous nature of the work, and the large increases in productivity. The average increase in wage cost was approximately 50 cents per ton.

DEFERRED TEST OF NEW LABOR POLICY

After Aug. 22, the effective date of the Labor Management Relations Act, collective bargaining was conducted under a new set of conditions. However, there was a rush of bargaining before the deadline, and most of the agreements in effect at the end of the year had preceded the effective date of the act. In addition, the need for clarification of the law and its administration contributed to a cautious attitude by employers in the invoking of those provisions of the law which are viewed as favorable to employers. Unions, furthermore, enjoyed a relatively favorable bargaining position because of the tight labor market and rising prices. The success of collective bargaining in 1947 is, therefore, not to be viewed as a test of the effects of the new law.

GROWTH OF UNIONS

Labor organizations operated in 1947 under certain special difficulties. One of these was the prevalence of attitudes unfavorable to unions in connection with the movement for state and Federal regulatory measures. Another obstacle in the way of union organizing activities was the legislation prescribing various restrictive conditions for the maintenance of membership, the obtaining of collective bargaining rights, and the defense of unions against unfair practices. At the same time, certain conditions tended to stimulate the growth of unions. These included the unifying effects of a common defense, the brisk demand for labor, progress of the labor press and radio, and gains in wages and working conditions commonly associated with unions.

Some unions, notably those most prominent in war industries, had suffered temporary losses in membership during the reconversion period. Most of these losses had been recovered by the fall of 1946; the estimated aggregate membership of 14,975,000 was then, in fact, somewhat larger than the previous peak of 14,800,000 in 1945. Estimates from union sources for the fall of 1947 ranged from about 15,500,000 to somewhat more than 16,000,000. The AFL retained its lead even after the withdrawal of the 600,000 members of the United Mine Workers. The addition of these to the independent or unaffiliated unions gave to those groups the largest advance in membership. The main progress in organizing activity resulted from the membership drives of the AFL and the CIO in the South.

LABOR UNITY CONVENTIONS

The sixty-sixth annual AFL convention met in San Francisco, Oct. 6-17, and the ninth CIO convention met in Boston, Oct. 13-17. A renewed sense of common interest was aroused by opposition to the new labor legislation and by anxiety regarding the pressure of rising prices on standards of living. United action, however, was prevented by differences as to the appropriate method. The CIO advocated an approach to unification through immediate joint action in fields of urgent common interest; the AFL continued to insist on organic unity as a condition of concerted action.

PLANS FOR POLITICAL ACTION

In the field of political action, the AFL modified its previous policy by creating a new agency, Labor's Educational and Political League, but reaffirmed, as the aim of the new agency, the traditional policy of rewarding labor's "friends" and defeating its "enemies" without regard to party lines. The impelling motive of intensified political action was the view that the new labor law is "designed to make it impossible for unions to live and function effectively"; it substitutes "government domination" and "distrust, suspicion, and class hatred" for "sound labor-management relations."

The AFL program included (1) tests of the constitutional validity of the law and particularly its more questionable sections; (2) the repeal of the act as the AFL primary objective; (3) the defeat of members of Congress who voted for the bill; (4) the setting aside of the national election day as a holiday to give workers a better opportunity for voting; and (5) the omission of all no-strike provisions from collective bargaining contracts as a protection against damage suits and other litigation. To carry out this program and to meet other Federation needs, the per capita dues of members of affiliated unions were increased, and the executive council was authorized, in case of need, to levy an assessment of one cent per member per week for "not exceeding 26 consecutive weeks" instead of "not exceeding 10 weeks."

The CIO convention characterized the new labor law as "infamous" and a "legal monstrosity." A convention resolution asserted that the CIO "can not and will not acquiesce in a law which makes it a crime to exercise rights of freedom of speech, freedom of press, freedom of assembly"—a reference to the criminal penalty against certain political activities. An "unceasing campaign" was demanded for the repeal of the act and for the "political repudiation" of those responsible for its passage. The convention pledged renewed support of the CIO Political Action Committee. It emphasized the program of stimulating registration of voters and "getting out the vote," and expressed the hope of working cooperatively with the AFL and the railroad brotherhoods "on the local, community, state, or national level."

WAGES, PRICES, AND ECONOMIC PROBLEMS

Both conventions gave attention to rising prices and challenged the view that wages and wage demands had been responsible. Exorbitant or extortionate profits were denounced as the main inflationary factor. A renewal of price controls was demanded by the CIO convention. The question of future wage demands was left to the constituent unions.

Labor legislation, although a major issue, did not prevent action by the two conventions on a variety of economic and social problems other than wages and prices. These included tax relief for low-income groups, new minimum-wage legislation, health insurance, a better housing program, control of monopolies, and a more effective implementation of the Employment Act of 1946.

INTERNATIONAL PROBLEMS

The European recovery program was endorsed by both conventions. Opposition had been expected in the CIO convention, but that body adopted a strong general resolution described by CIO President Philip Murray as approval of the Marshall Plan, and Secretary of State Marshall, addressing the convention, received an enthusiastic reception.

The AFL convention reasserted its hostility to the World Federation of Trade Unions on the ground of Communist domination and reaffirmed its policy of fighting Communists and fellow travelers "who would use the free trade-union movement as a vehicle to destroy it." The convention approved the efforts of the Federation to maintain contacts with unions abroad and to strengthen the free trade-union movement.

The CIO convention unanimously adopted a resolution which, by implication, asserted the complete freedom of the CIO from the anti-American influences associated by the AFL with the WFTU. "The CIO," the resolution stated, "is an American institution with a single national allegiance and that allegiance to our own country, the United States of America, its form of government and basic democratic institutions under the Constitution of the United States." CIO President Murray reported to the convention that the CIO had continued its efforts to strengthen the WFTU and to advance within that organization "the American tradition of democracy and freedom and for the extension of these ideas to all the peoples of the world."

The CIO convention reiterated its criticism of the barring of the CIO from representation in the International Labor Organization. The AFL convention heard reports of the Federation's participation in the ILO annual conference at Geneva, in the work of its Governing Body, and in the meetings of most of its industry committees. Both conventions strongly approved continued participation in the work of the Economic and Social Council of the United Nations. The widened international outlook of labor was reflected in the program and resolutions of the 14th Annual Conference on Labor Legislation, which met in Washington on Dec. 9. The Conference emphasized international labor standards, particularly in relation to state legislation in the United States.

ELECTIONS AND UNION AFFILIATIONS

The convention elections resulted in two important changes. At the CIO convention, R. J. Thomas, a vice president of the CIO, of the United Auto Workers, and of the World Federation of Trade Unions, was replaced as one of the CIO vice presidents by O. A. Knight of the Oil Workers Union. The United Auto Workers' convention also replaced Thomas and other opponents of President Walter Reuther in that union, thus unifying one of the largest unions in support of the Reuther policies, a move commonly viewed as strengthening the anti-Communist elements. In the AFL convention, the failure of John L. Lewis of the United Mine Workers to carry his opposition to signing the non-Communist affidavit, led to his refusal of membership in the executive council and the election in his place of Daniel W. Tracy of the International Brotherhood of Electrical Workers. Later, Lewis sent to the AFL a curt note "disaffiliating" the United Mine Workers from the Federation.

CHANGES IN WAGES AND PRICES

In 1946 and early 1947, the "first round" of post-war wage increases ran its course; in 1947, the "second round," overlapping the first, netted smaller but substantial gains. The second-round "package pattern" of about 15 cents (including "fringe" adjustments in addition to basic rates) was formulated early in the year and was adopted in many industries, but the average gain fell considerably short of 15 cents.

The earlier post-war wage increases were associated mainly with reductions in hours and premium pay; the later increases, more largely with rising prices, production, and profits. The recent movements of wages and prices may be compared most significantly in the perspective of the earlier post-war period. Comparisons of basic data in the form of percentage changes are given in the accompanying tabulation for the entire post-war period, for June 1945 to June 1946 (preceding the sudden upturn in prices in July), and for the period from June 1946 to September 1947.

CAUSES OF THE RISE IN PRICES

Price changes were associated closely with wage changes in a few industries, but price increases in gen-

COMPARATIVE CHANGES IN WAGES AND PRICES, JUNE 1945 TO SEPTEMBER 1947

	Per Cent of Increase		
	June 1945 to Sept. 1947	June 1945 to June 1946[1]	June 1946 to Sept. 1947[2]
Average earnings of non-agricultural wage earners[3]			
Hourly	25.4	9.3	14.8
Weekly	16.8	1.8	14.8
Consumers' prices			
All items	27.0	3.3	22.9
Food	44.2	3.2	39.8
Wholesale prices			
All commodities	48.4	6.4	39.4
Farm products	42.9	7.4	33.0
All commodities except farm products	49.8	6.0	41.3

[1] Preceding the temporary lapse and later removal of controls.
[2] The period of rapid price rise beginning in June 1946.
[3] The percentage changes are computed from indexes constructed by the Federal Reserve Bank of New York on the basis of Bureau of Labor Statistics data and other sources.

eral, especially after the spring of 1946 (accompanying and following the decontrol measures), far exceeded the rise in the cost of labor, even assuming no rise in productivity. In the absence of price controls and rationing, the increase in aggregate wages available for the buying of goods and services was one of the sources of pressure of the means of payment on available supplies and therefore on prices. In so far, however, as increased wage payments resulted from larger employment and production, and in so far as the economy achieved increased productivity, the pressure of wages as buying power on available supplies was counteracted.

While wage payments were expanding the means of payment in an economy of limited supplies, the increases in other types of income were also exerting pressure on prices. Between the third quarter of 1945 and the third quarter of 1947, the total compensation of hired workers (including salaried employees) rose 6 per cent, as compared with an increase of 29 per cent in other types of income. The corresponding increases from the third quarter of 1946 to the third quarter of 1947 were 9 per cent for workers' compensation and 21 per cent for other income. Between July 3, 1946, and Nov. 26, 1947, the loans of weekly reporting members of the Federal Reserve System rose 34 per cent. The increase in bank loans in the year ended in September 1947 was the largest in history for comparable periods. Rising investment implied a sharp competition of business men for capital goods and a restricted use of production facilities for making consumer goods.

Pressure of demand on available supplies was also increased by an extremely short corn crop in the face of abnormal demands for grain. Shortage of livestock feed in turn tended to raise the prices of meat, poultry, and dairy products, portending a cumulative shortage of these products in 1948. The abnormal and urgent needs of other countries, especially for grains, aggravated the problem of rising prices.

THE PROBLEM OF CONTROLLING INFLATION

Various factors were involved in the rapid rise of prices. The problem of checking inflation, therefore, gave rise to a variety of proposals. The Council of Economic Advisers, created by the Employment Act of 1946, repeatedly pointed out the danger of rising prices and suggested the possible need for the reinstatement of limited controls. The President, in his message of Nov. 17 to the special session of Congress, advocated a program of selective controls extending to credit and to domestic consumption and exports as well as prices and wages.

In the fields of wages and prices, the President recommended legislation to deal directly with specific prices in "limited areas of acute danger." Authority was requested to impose price ceilings on vital commodities in short supply that basically affect the cost of living or industrial production. The Rent Control Act, it was stated, should be extended and strengthened. Authority was also requested to ration basic cost-of-living items "on a highly selective basis." Finally, as a corollary of price controls, the President recommended a grant of authority to deny wage increases such as would prevent the maintenance of price ceilings. Strong Congressional opposition, together with the limited time available during the extra session, prevented the authorization of new compulsory controls, even on a "stand-by" basis.

INDICATIONS OF RISING PRODUCTIVITY

Both the opponents and the proponents of compulsory controls agreed that vital measures for combating inflation included efforts to maintain full employment with rising efficiency and expanding production.

Recent trends of productivity in terms of man-hour output are not readily measurable. Available information indicates, however, a continuation of the steady upward movement that has long characterized the American economy. Productivity had been retarded in the reconversion period by the necessary readjustments of plant, equipment, materials, and manpower, and by the problems of resuming normal collective bargaining. Conditions after the middle of 1946 were much more favorable to productivity. Heavy investments since the war had taken advantage of improved technology in the replacement of worn or obsolescent equipment. The shorter work week, peaceful collective bargaining and adjustment of grievances, apprenticeship and other training methods, and improved safety measures (notably in coal mining), contributed vitally to more efficient production. Both management and labor exhibited increasing skill and adaptability to the more stable conditions of peacetime production.

Labor unions gave tangible expression to their desire for increased productivity as a basis of higher wages and standards of living. The reduction in the shift of coal miners from nine to eight hours was followed by evidences of a significant rise in man-hour output. An illustration of union attitudes, as expressed in collective bargaining, is the agreement of March 22, 1947, between the Rubber Workers and the "Big Four" companies: "The union agrees to cooperate with management to attain the best productivity possible which is consistent with fair and reasonable labor practices. The union will support management's efforts to improve production, establish efficient methods, eliminate waste, conserve materials and supplies, and improve the quality of workmanship."

GAINS IN PRODUCTION AND EMPLOYMENT

Throughout 1947, the nation's economy operated not far below its capacity except under "forced-draft" conditions and extreme overtime such as existed during the war. Substantial gains in 1947 production were nevertheless achieved.

The Federal Reserve Board's index of industrial production (manufactures and minerals) was 9 per cent higher in 1947 than in 1946. Freight carloadings rose 8 per cent, and electric energy production, 14 per cent. The value of construction contracts in October 1947 was 27 per cent greater than in October 1946, an increase resulting in part from rising costs.

Unemployment in the entire civilian labor force in November was 1,621,000, the lowest figure since August 1945. Total civilian employment rose from 57,040,000 in November 1946 to 58,595,000 in November 1947, figures seasonally below the peak of 60,079,000 in July. The number of wage and salary workers in non-agricultural establishments rose from 42,065,000 in October 1946 to 43,298,000 in October 1947. Increases occurred in all major industry divisions except government. The decline in public employment was wholly Federal; the number of employees of state and local governments increased.

GENERAL INTEREST IN MAINTAINING FULL EMPLOYMENT

There had been widely expressed fears of a 1947 recession in employment and production. Persistence of the danger was recognized; and interest in the problem of the continued maintenance of high levels characterized the thinking alike of labor, management, academic, and government circles.

The large volume of exports contributed to business activity, but under conditions of scarcity in domestic markets the abnormal foreign demands complicated the problem of achieving a balanced economy at high levels. The President's Committee on Foreign Aid (composed of business men, economists, and labor leaders) recommended a broad program consonant with the Marshall Plan. The Committee at the same time emphasized the necessary American sacrifices and the accentuated need for measures to counteract the forces tending toward inflation and an unbalanced economy.

Various private groups gave special attention to the problems of full employment. Among these were the Committee for Economic Development, primarily representative of business, and the National Planning Association, with committees of leaders of business, agriculture, and labor.

VIEWS OF LABOR ON FULL EMPLOYMENT

Labor leaders recognized that full employment implies the efficient use of adequate capital resources as well as labor. CIO President Murray, in his annual report to the convention, stated that "the limited capacity of our industrial production machinery" as well as "the lack of purchasing power in the hands of the masses of our people" is a threat to "continued full employment." Leaders of both the AFL and the CIO insisted on the need for price and income adjustments as necessary to prevent the cutting away of consumer buying, to halt the forces which, unchecked, will cause depression, and to provide a continuing basis, as distinguished from existing temporary props, for the maintenance of full employment.

WORK OF THE COUNCIL OF ECONOMIC ADVISERS

Probably the most distinctive current feature of the national economy in contrast to former periods of boom and depression is the conscious program centering around the Employment Act of 1946, a program designed, in the works of the December 1947 Report of the Council of Economic Advisers, to keep the "complicated machinery of production, distribution, and consumption going steadily and efficiently." The Council described the program as a challenge to Government, industry, agriculture, and labor—a challenge which "will be the supreme test of our business system." The Council indicated that its work in the immediate future would be directed toward giving aid, under the Employment Act, to public agencies and private groups in the working out of tangible measures for meeting the challenge.

The Council, an entirely new type of official agency, warned that before the end of 1948, or at least "in the not distant future," the country must face the issue of preventing a breakdown in market demand under full production. It was asserted that we can not long continue to depend on recent "artificial props" for the maintenance of "maximum employment and high production."

The Council's Report was in essence a discussion of the nature and means of achieving a "pattern of reciprocally balanced consumption and production" viewed as necessary for the maintenance of maximum employment beyond the period of wartime and transitional "artificial props." Essential steps include the maintenance of "the lowest price consistent with a fair return in a stable economy rather than the highest price that the traffic will bear in an unstable economy." The Council recognized the necessity for adequate capital and set forth certain standards for judging the adequacy of income required for capital formation. The avoidance of unused and deflationary accumulations was emphasized; the current rate of capital formation must be adjusted "to the rate of consumption that will keep capital plant utilized at the highest practicable capacity with the highest practicable steadiness." Means must be devised for "the passing on of more goods to more people." This entails "a double process of enlarging mass incomes and lowering prices of mass-produced goods," with "much higher consumption in all the lower and middle ranks."

LIVING STANDARDS: A NEW FAMILY BUDGET

An exceptionally significant statistical development of the year was the publication of new family budget data for city workers. The contents of a budget for a family of four were described in detail, and its cost was estimated in terms of prices in 34 cities in March 1946 and June 1947. The study had been undertaken at the request, in the spring of 1945, of the Labor and Federal Security Subcommittee of the House Committee on Appropriations.

The budget, as described by the Commissioner of Labor Statistics, is not a subsistence or minimum budget, "but it is far from a luxury budget. It does not represent an ideal budget or one based on a few people's notions of what workers should have; rather it is based on the kinds of goods and services workers' families in the United States actually select." In determining the level of living, the Bureau in general followed the recommendations of a technical advisory committee of experts. In respect to food, for example, the recommendations of the Food and Nutrition Board of the National Research Council were adopted as to the amount of calories, proteins, and other food elements necessary for health and well-being; the Bureau then selected families whose food consumption approximately met this standard and listed the kinds and quantities of foods actually bought by them.

The details of the items and quantities in the budget apply to a family of four—an employed father with three dependents, his wife, a girl of 8, and a boy of 13, with both children in school. This basic budget was priced in 34 cities. The highest cost in June 1947 was $3,458 in Washington, D. C., and the lowest cost was $3,004 in New Orleans, La. Next below the Washington cost was $3,388 in Seattle, Wash., and next above the New Orleans cost was $3,010 in Kansas City, Mo.

Various adjustments were made to apply the basic budget for a four-person family to other types of families. The average wage of the individual factory worker in June 1947 was $49.33 per week, or, at an annual rate, somewhat less than $2,600. The Bureau of Labor Statistics, however, in publishing the data, emphasized the fact that the estimates of cost can not be related with exactness to available figures of average earnings of families or individuals.

EMPLOYMENT AND UNEMPLOYMENT STATISTICS

By Irma Rittenhouse
New York State Division Placement and Unemployment Insurance

GENERAL

Employment in 1947 continued at high levels, and the recession expected by those fearful of the effects of price inflation in the latter half of the year did not occur. Expansion of peacetime production and employment showed signs, however, of a halt; hiring rates slowed down as labor requirements were finally met in industries producing for the peacetime boom market. Some slight declines in employment in scattered industries developed in the second half of the year, but none was pronounced enough to forecast clearly any general lowering of the record employment level.

The Federal Reserve (unadjusted) index of industrial production rose from 184 in September 1946 (1935-39 = 100) to 189 in September 1947. Durable and non-durable goods production both showed slight increases over this period. The U. S. Department of Commerce reports that, while heavy goods industries are still trying to meet a backlog of unfilled orders, output has been somewhat reduced in other lines; certain consumers' goods encountered a leveling off of demand, and automobiles, refrigerators, and railroad equipment, although still in demand, have been hampered in production by shortages or irregular supplies of some materials.

In September 1947, the civilian labor force was estimated at 60,784,000 (U. S. Bureau of the Census). Of those at work or seeking work, 17,233,000 were women, a somewhat smaller proportion than a year earlier. About 50,000,000 persons were in the non-agricultural labor force. Occupational shifts of both men and women workers were of major proportions in both 1946 and 1947, and two years after the war there was still evidence of rather widespread efforts by workers to resettle occupationally.

The U. S. Bureau of Labor Statistics reported in the late fall a generally satisfactory quantitative distribution of labor with no major industry hampered in production by shortages of manpower. Exceptions were low-wage and other relatively undesirable jobs, as well as the customary demands for workers of specified skills, not necessarily immediately available in the locality. Some geographical differences in labor supply developed toward the end of the year, with the North Central manufacturing region still seeking labor and the Northeast and Southeast reporting surpluses of labor leading to relatively high rates of unemployment.

In the second month of 1946, manufacturing employment increased, especially in durable goods industries. By April, manufacturing employment dropped in the first clearcut recurrence of normal seasonal trends since the end of the war. By June, total employment (including part-time) exceeded 60,000,000. At this time began the small scattered declines in employment and in hours of work above referred to, attributable apparently to slackening of consumer demand and to more efficient use of labor. A definite slackening of demand for labor generally in the manufacture of non-durable goods was evident by the middle of the year. By autumn, the recurrence of seasonal employment fluctuations (almost eliminated during the war and immediate post-war production drives) was fully evident. The number of jobs remained at a high level until the end of the year, however, and in October, with a labor force 7,000,000 larger than in 1945, persons with no job attachment were at the lowest point (1,700,000) since the war ended. Table I shows the status of the labor force, as estimated by the U. S. Bureau of the Census, in September of 1947 and 1946.

TABLE I

LABOR FORCE, SEPTEMBER 1947 AND SEPTEMBER 1946

(in thousands)

	September 1947	September 1946
Armed forces	1,326	2,220
Civilian labor force	60,784	59,120
Female	17,233	17,270
Male	43,551	41,850
Employed	58,872	57,050
Female	16,714	16,780
Male	42,158	40,270
Non-agricultural employment	50,145	48,300
Agricultural employment	8,727	8,750
Unemployed	1,912	2,070

Estimates of total employment by industrial grouping are now available, in addition to indexes (U. S. Department of Labor). These illustrate the points of growth and shrinkage in recent employment, and figures for September of 1946 and 1947 are shown in Table II.

TABLE II

NUMBER OF EMPLOYEES IN NON-AGRICULTURAL ESTABLISHMENTS

(in thousands)

	September 1946	September 1947
Manufacturing	15,035	15,696
Mining	884	893
Construction	1,747	1,924
Transportation and public utilities	4,064	4,141
Trade	8,523	8,700
Finance	1,534	1,585
Service	4,456	4,633
Government	5,605	5,425

EMPLOYMENT IN MANUFACTURING

Indexes of employment in durable and non-durable goods generally showed no major changes from September of 1946 to September 1947, being somewhat higher in 1947 for both groups. (See Table III.) The decline from 177.7 in the wartime peak year to 156.7 in September 1947 (high point for first nine months of 1947) reflected the great shifts of workers out of manufacturing into distributive and service trades and other non-manufacturing pursuits after the war ended.

TABLE III

INDEXES OF MANUFACTURING EMPLOYMENT BY INDUSTRY

September 1947 and 1946
(1939 = 100)

	Sept. 1947	Sept. 1946
All Manufacturing	156.7	149.5
Durable Goods	179.5	173.1
Iron and steel and products	159.3	152.7
Elec. machinery	218.9	217.3
Other machinery	224.3	210.3
Transportation equipment, except automobiles	257.4	286.8
Automobiles	199.2	196.0
Lumber and timber basic products	161.6	138.6
Non-durable Goods	138.7	130.9
Textiles and fiber products	104.2	105.2
Apparel and other finished textile products	145.6	132.9
Food	161.1	137.5
Tobacco	92.3	93.5
Chemicals and allied products	195.2	184.0
Printing, publishing and allied industries	130.7	122.3

The index was forced down from the wartime peak by large relative declines in durable goods employment in the post-war period; in September 1947, non-durable goods manufacturing, largely for general consumer use, was at a relatively higher level than during the war when such production was curtailed drastically. (See Table IV.)

TABLE IV

INDEXES OF EMPLOYMENT OF PRODUCTION WORKERS IN MANUFACTURING

(1939 = 100)

	All Manufacturing	Durable Goods Group	Non-durable Goods Group
1943 Average	177.7	241.7	127.4
1947			
January	152.7	178.0	132.8
February	153.7	180.1	133.0
March	154.0	180.9	132.8
April	152.9	180.8	130.9
May	150.6	178.0	129.1
June	151.4	179.7	129.1
July	149.9	174.7	130.3
August	153.8	177.1	135.4
September	156.7	179.5	138.7

Iron and steel and products employment rose almost uninterruptedly during the 12 months ended in September 1947. Employment in electrical machinery, however, declined almost to the 217.3 level of September 1946 after a steady increase to over 230 in the spring of 1947. Radio and phonograph and communication equipment employment experienced sharp losses over the year, accounting for the over-all decline in this industry. Employment in other machinery fields, whether the manufacture was for industrial or ultimate consumer use (agricultural machinery, business machines, washing and sewing machines, etc.), held steady or increased, a notable exception being employment in the manufacture of machine tools.

MINING EMPLOYMENT

Employment in coal mining was substantially below 1939 levels in 1947. Employment in bituminous mining was well below 1946 levels also, though anthracite mining and metals mining employment rose from the previous year. There was only one brief work stoppage in coal mining in 1947, so that violent employment fluctuations, often reported in the past, are not evident in the indexes. As pointed out in the 1946 edition of THE AMERICAN YEAR BOOK, the employment problem in the bituminous branch of the industry is one of over-supply of labor from the long-run standpoint. Indexes of employment in mining in 1947 are shown in Table V.

TABLE V

INDEX OF EMPLOYMENT IN MINING

(1939 = 100)

	Anthracite	Bituminous	Metals
January	83.4	90.8	87.2
February	82.9	90.4	87.6
March	81.8	89.7	88.6
April	80.1	83.0	89.6
May	81.1	88.1	89.4
June	80.3	88.7	90.4
July	78.7	81.8	89.1
August	81.4	88.1	89.5
September		89.0	88.4

EMPLOYMENT IN CONSTRUCTION

Private construction continued at high levels in 1947. According to the U. S. Department of Labor, activity was not limited by shortages of manpower or materials, but rather by continually increasing costs. Employment by private construction contractors continued its post-war increase in 1947, and reached a peak of 1,904,000 in September (excludes force-account workers and employees of non-construction firms and self-employed construction workers). In November, 1,852,000 were employed, compared to 1,712,800 in November 1946 (U. S. Bureau of Labor Statistics). Government construction remained at low levels compared to private activity. Federal and state highway construction and maintenance employment were on higher levels than in 1946, however, and in August 1947, 295,234 were reported employed on such work, compared to 236,644 a year earlier.

EMPLOYMENT IN UTILITIES AND TRADE

Employment in electric light and power, transportation, and telephone companies was higher in 1947 than in 1946, but employment in telegraph activities showed some decline. Utilities normally have relatively stable employment; the year's increases were in response to continued heavy demands on their facilities by business and consumers in the post-war recovery period. Employment in trade, also usually stable compared to industrial employment, increased above 1946 levels. Figures for selected months in 1947 are shown in Table VI.

EMPLOYMENT ON RAILROADS

Employment on railroads declined generally in 1947 for the third successive year, apparently resuming a prewar trend. By September 1947, an estimated 1,410,000 were employed on Class I railways, about the same number as a year earlier. This number greatly exceeds, however, the pre-war employment. In 1939, an average of less than 1,000,000 was employed. It is also not far below the peak of recent railway employment in 1945. (See Table VII for monthly employment indexes.)

TABLE VI

INDEXES OF EMPLOYMENT IN UTILITIES AND TRADE

(1939 = 100)

	January 1947	April 1947	July 1947	September 1947
Public Utilities				
Electric Light and Power	102.5	104.8	109.3	110.1
Street Railways and Busses	130.9	130.9	130.9	130.0
Telegraph	104.6	104.5	101.5	
Telephone	185.2	127.2	193.3	194.5
Trade				
Retail	110.5	111.5	110.2	112.1
Wholesale	112.2	110.5	111.1	113.7

TABLE VII

INDEXES OF EMPLOYMENT ON CLASS I STEAM RAILWAYS

(1935–39 = 100)

	1947	1946
January	130.5	141.0
February	129.7	138.4
March	129.9	138.4
April	131.9	136.3
May	133.8	132.4
June	134.8	134.6
July	135.5	136.6
August	135.5	138.8
September	—	—

AGRICULTURAL EMPLOYMENT

According to the U. S. Bureau of Agricultural Economics (*Farm Labor*), there was a generally adequate supply of farm labor throughout 1947. Farm labor even exceeded the available jobs in some parts of the country. Migratory workers along the Atlantic Coast, for example, ran into longer gaps between Florida and northern jobs than usual because of adverse weather conditions.

The decline in the use of family labor compared to 1935-39 continued in the country as a whole. In the middle Atlantic, Mountain, and Western States particularly, more hired labor was used than in the war period. Increased use of farm machinery, however, has encouraged again the restriction of labor to family members in the staple crops, since machinery simplifies the production and harvesting problem for such crops. Truck crops, fruit, and specialty crops, however, still require hired labor because of less adaptability of machinery, and these are the crops widely grown in the Middle Atlantic and Western States.

The annual average number of persons employed on farms in 1910-14 was 12,052,000, of which 9,160,000 were family labor. The December 1935-39 average was 9,736,000, of which 7,465,000 were family labor. In December 1947, total employment was 9,402,000, of which 7,298,000 was family labor. Total employment has dropped from an index of 90 (1910-14 = 100) in December 1935-39 to 86 in December 1947.

A special study of agricultural productivity by the U. S. Bureau of Labor Statistics (*Productivity in Agriculture 1909-1946*) further emphasizes the long-run declining demand for farm labor. Between 1909 and 1946, according to this report, farm production increased 51 per cent, but employment declined 18 per cent. Greatly increased output per worker (84 per cent) over this period is attributable to more efficient farming methods.

Changes in production and in employment in various farming areas are shown in Table VII. The data are from the special study referred to above.

UNEMPLOYMENT

Information on unemployment is obtained from two sources, the estimates of the U. S. Bureau of the Census and the unemployment benefit claim reports of the states and the Railroad Retirement Board national system. Unemployment reported from the first source relates only to persons without any job for as long as 30 days or more, while benefit claims are received from persons laid off from insured employment or on part-time and actively seeking work, irrespective of the duration of the layoff. (For a description of the differences in these two sets of figures, see THE AMERICAN YEAR BOOK for the year 1946.)

Because of the restricted definition used, the Census figures are smaller than the unemployment claim figures. The former are given in Table I. Weekly continued claims for state unemployment benefits amounted to 3,742,000 in September 1947, a decline of 153,000 from a year earlier. There was a steady and sharp decline in the number of persons receiving benefits in the first nine months of 1947, important factors being the expiration of rights to benefits for thousands of war workers and post-war occupational resettlement. Insured unemployment was heavy, however, on the Pacific Coast and in the Northeast compared to coverage in those two regions. In the Northeast, for example, the number unemployed was 36.9 per cent of the national total in September 1947, and the West Coast contributed another 16.8 per cent.

TABLE VII

INDEXES OF PRODUCTION AND EMPLOYMENT BY FARMING AREA

(1939 = 100)

Area	Production		Employment	
	1935	1946	1935	1946
Corn	88.6	117.9	103.2	95.8
Western dairy	90.7	116.6	105.5	93.2
Eastern dairy	97.0	113.0	97.0	96.7
Eastern cotton	105.4	103.9	106.7	89.5
Delta cotton	79.6	82.7	104.2	90.0
Small grain	103.2	146.3	105.7	98.5
Western cotton	98.0	91.6	101.2	88.5
Middle Eastern	89.2	117.0	107.0	91.7
Range	91.1	119.7	106.7	98.6
California	85.9	124.5	94.9	107.5
Northwestern	95.0	116.7	94.8	100.0

The absorption of veterans of the Second World War in employment, as reflected by claims under the Servicemen's Readjustment Act, has been rapid. By September 1947, only 315,000 new claims were being received, the lowest number since the program reached its first peak after the war. Weekly continued claims by veterans in the month of September 1947 amounted to 2,663,140.

Total separation rates (separations from employment per 100 employees) were lower than in 1946 during the first nine months of 1947, but the drop was mainly attributable to a decline in the rate of voluntary quitting and in military and miscellaneous separations. The layoff rate was higher in July and September than a year earlier, and, although lower than in 1946 in other months, did not show such a sharp decline as voluntary separations. Accession rates were generally lower than in 1946.

This combination of movements in labor turnover reflects the tightening of employment conditions in 1947. Voluntary quitting by workers always declines when jobs are getting scarcer. The slackening of accessions and slight increase in the layoff rate reflect the general adequacy of the labor supply for production in 1947.

PERIODICAL PUBLICATIONS

American Child, The
419 Fourth Ave., New York City.
American Federation of Labor Weekly News Service
901 Massachusetts Ave., N.W., Washington, D. C.
American Federationist, The
901 Massachusetts Ave., N.W., Washington, D. C.
C.I.O. News (National Edition)
1106 Connecticut Ave., N.W., Washington, D. C.
Conference Board Management Record, The
247 Park Ave., New York City.
Economic Outlook (C.I.O.)
1106 Connecticut Ave., N.W., Washington, D. C.
Employment Service Review
United States Employment Service, Department of Labor, Washington, D. C.
International Labour Review
International Labour Office, Montreal, Canada.
Labor (Sponsored by 15 railroad unions.)
10 Independence Ave., S.W., Washington, D. C.
Labor Information Bulletin
Department of Labor, Washington, D. C.
Labor and the Nation
Inter-Union Institute for Labor and Democracy, 112 E. 19th St., New York City.
Labor's Monthly Survey (A.F.L.)
9th and Massachusetts Ave., N.W., Washington, D. C.

XVI. LABOR AND LABOR LEGISLATION

Monthly Labor Review
Bureau of Labor Statistics, Department of Labor, Washington, D. C.

Social Security Bulletin
Social Security Board, Federal Security Agency, Washington, D. C.

Survey Graphic, The
112 E. 19th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN FEDERATION OF LABOR, American Federation of Labor Bldg., 901 Massachusetts Ave., N.W., Washington, D. C.

AMERICAN LABOR EDUCATION SERVICE, 1776 Broadway, New York City.

CONGRESS OF INDUSTRIAL ORGANIZATIONS, 718 Jackson Pl., N.W., Washington, D. C.

INTERNATIONAL LABOR OFFICE (Washington Branch), 734 Jackson Place, N.W., Washington, D. C.

INTER-UNION INSTITUTE FOR LABOR AND DEMOCRACY, 112 E. 19th St., New York City.

NATIONAL CHILD LABOR COMMITTEE, 419 Fourth Ave., New York City.

RAILWAY LABOR EXECUTIVES ASSOCIATION, 10 Independence Ave., S.W., Washington, D. C.

DIVISION XVII

RELIGION AND RELIGIOUS ORGANIZATIONS

INTERDENOMINATIONAL ACTIVITIES

By PRESTON KING SHELDON
EDITOR AND WRITER

WORLD COUNCIL OF CHURCHES

Although the World Council of Churches had not yet been formally organized in 1947, extensive operations were being carried on preparatory to its first world assembly, scheduled for Aug. 22 to Sept. 5, 1948 in Amsterdam, The Netherlands. The work was being supervised by a provisional committee which had been set up in Utrecht in 1938 (see THE AMERICAN YEAR BOOK, 1938, page 606). The preliminary approaches to the World Council were: the missionary, launched in a world conference on missions in Edinburgh, in 1910, from which evolved the International Missionary Council; the social and cooperative, which was emphasized in 1925 in Stockholm, Sweden, with the launching of the Universal Christian Council for Life and Work; and the interpretive which was begun in the first World Conference on Faith and Order in 1927, in Lausanne. The Life and Work and Faith and Order approaches eventually were coordinated through the holding of a second conference in 1937, in Oxford and in Edinburgh, respectively (see THE AMERICAN YEAR BOOK, 1937, page 613). The plan which eventually resulted in practical operations of Protestants on a world-wide scale, was accepted in principle at these two gatherings, and the World Council of Churches resulted. The International Missionary Council was fully recognized, and cooperation between the two bodies grew until, by 1947, the World Council of Christian Education, successor to the World's Sunday School Association, organized 58 years before, had formed a joint commission with them to carry on Christian education.

In preparation for the 1948 assembly in Amsterdam, the study department of the World Council of Churches undertook special investigation of the social message of the Bible. Four commissions were created to each of which an aspect of the general theme of the assembly, "Man's Disorder and God's Design," was assigned. These aspects were: (1) the Universal Church in God's Design; (2) God's Design and Man's Witness; (3) the Church and the Disorder of Society; (4) the Church and International Affairs. Two years of study were undertaken by the commissions which involved conferences in Europe and North America for adults and young people. In cooperation with the International Missionary Council, the interest of younger churches was invited. In many countries, study groups were organized. The Faith and Order proponents followed plans laid in 1937 at Edinburgh in a scheme of study conducted by three other commissions on doctrines, worship, and inter-communion. Young people were being brought together also through the ministrations of a youth department of the World Council of Churches with the collaboration of the World's Alliance of Young Men's Christian Associations, and Young Women's Christian Associations, World's Student Christian Federation, International Missionary Council, and World's Sunday School Association and its successor, the World Council of Christian Education. Joining in this effort were the Foreign Missions Conference of North America and the Home Missions Council of North America, along with the Student Volunteer Movement, United Student Christian Council, and the Student Christian Movement of Canada, which five groups were sponsors, in late December 1947, of a conference for several hundred college students of North America at the University of Kansas, Lawrence, at which the work of missions was studied.

By December 1947, there were 127 churches in 39 countries affiliated with the World Council of Churches, and, of these, six of the new members in 1947 were Eastern Orthodox communions, a fact which was hailed as highly significant of new trends occurring in Christian faith and practices. The new Orthodox affiliates were the Patriarchates of Jerusalem, Antioch, and Alexandria, the Coptic Church, Egypt, the Syrian Orthodox Church of Malabar, India, and the Church of Greece.

CHURCH WORLD SERVICE

Church World Service, organized May 7, 1946 to serve in the field of overseas relief and reconstruction, had as its parent bodies the Foreign Missions Conference of North America, Federal Council of the Churches of Christ in America, American Committee of the World Council of Churches, and United Council of Church Women. By the summer of 1947 it had set up a committee on displaced persons through which the whole program of American Protestant and Orthodox churches for displaced persons would be channeled. In its first year, reconstruction funds of $10,000,000 with relief supplies, made a total of $15,000,000 sent to 29 countries in Europe and Asia, contributed by more than 30 denominations. By the beginning of 1947, the organization had set up a goal of $1,000,000 a month in funds and 1,000,000 pounds a month of clothing, shoes, and bedding. Gifts of money fell short of the desired goal most of the year, but gifts in kind went ahead of schedule by August, in which 2,000,000 pounds were sent and the year's goal was advanced to 20,000,000 pounds. Before the end of 1947, 42 countries were reached. A goal of $60,000,000 for 1947 and 1948, one-half to be channeled through Church World Service, was seen as a need for overseas relief following discussions by representatives of 16 Protestant denominations, in May 1947 in New York City, who came together at the suggestion of the Federal Council of the Churches of Christ in America. Representatives of the World Council of Churches and the Foreign Missions Conference of North America also attended. Needs foreseen for the years 1948-52 were outlined to the gathering by Herbert C. Lytle Jr., associate director of Church World Service.

FEDERAL COUNCIL OF CHURCHES

In a statement on the Churches and World Order in September, 1947, the Federal Council of the Churches of Christ in America called for renewed dedication to the purposes of the United Nations through its Department of International Justice and Good Will. The statement was sent to churches to be read on the second anniversary of the United Nations. The Federal Council launched a new department in 1947, moved by increased recognition of the importance of economic life to human welfare, religion, and social progress. The department was organized by expanding the Industrial Relations Division of the Department of Social Relations into a full department of the Council. Announcing the step, the Council cited as a factor in prompting it a conference held Feb. 18-20 in Pittsburgh, Pa., in which laymen predominated two to one of clergy and in which business, organized labor, and agriculture were all represented. The new department was to "seek to follow up this wide new interest." Regional "little Pittsburgh conferences" were planned under the auspices of state and local councils of churches. It was planned for the new department to carry on the previous activities of the Industrial Division, including publication of Labor Sunday messages and public statements on specific economic problems; information to the churches on labor and social legislation; publication of pamphlets and other literature in the field of the church and economic problems and the religious significance of these problems; cooperation with national Catholic and Jewish groups; investigation of industrial problems; techniques for churchmen in economic education and action; conferences on specific economic problems, such as consumers' cooperatives and labor-management relations. Arthur S. Flemming of the United States Civil Service Commission was named chairman of the new department. Its 1947 Labor Sunday Message called for study of methods to avoid "recurrent business depressions in which unemployment rots the souls of men." Responsibilities of the churches listed included seeing that no congregation permitted class or race distinctions; rejection of ideas "that most employers are greedy conspirators who combine in gigantic soulless corporate entities," and "that organizations of employees are usually a rabble led by demagogues."

The Federal Council was one of 65 agencies represented at a conference on local health units in September 1947, under the auspices of the American Public Health Association. Evidence was reviewed "demonstrating that a third of the national population is without the services of an organized health department and an additional third is served by a staff which is obviously insufficient." The conference proposed workable and non-controversial standards of improvement. The churches of America were urged by Charles P. Taft, president of the Federal Council, in a special plea in October 1947, to "seize the moral initiative" in the national voluntary food conservation program.

The Council's executive committee issued several statements in 1947 covering questions at issue in the public mind. Its general secretary, Samuel McCrea Cavert, published in January a denial of charges by "a few captious voices" against Martin Niemoeller, militant German Lutheran pastor, who had arrived in the United States in December 1946, for a speaking tour extending into 1947. The allegations listed were: (1) Niemoeller was once a member of the Nazi party; (2) he had no quarrel with the political objectives of Hitler and was concerned only with a defense of the Church; (3) he had not admitted the moral responsibility of the German people for their treatment either of the Jews or of the peoples of invaded nations. Dr. Cavert said no evidence existed to prove the first allegation, although it was true Niemoeller had voted for the Nazis in a minor election in the earlier period of their movement, but "this was a time, however, when not even the Americans who had abundant opportunity to view the German situation objectively were yet alert to the menace of Hitler's leadership." It was recalled that Niemoeller in 1933 "broke so completely with Nazism that the press and the radio of the world made it a feature story." Documented evidence of Niemoeller's opposition to Nazi political objectives could be found in "the famous letter of the Evangelical Church to Hitler in June, 1936" which "was widely quoted in the press," Dr. Cavert continued. He said in denial of the third allegation, that Niemoeller had declared before a representative meeting of the German Church in Stuttgart, in October 1945 which Dr. Cavert attended, that it was not enough to blame the Nazis, but that Christians also had to confess their share of guilt.

The first churchman from the Russian zone of occupation in Germany to visit America was Otto Dibelius, Bishop of Berlin and Brandenburg, who came in October 1947. He declared German Protestant groups since Hitler had been aroused to a new consciousness of world Christianity. He saw signs of a new religious outlook among university people, scientists, journalists, and public leaders in Germany.

Among the pronouncements of the Federal Council's executive committee was one in January 1947, reaffirming "continued adherence to the American principle of separation of Church and State and to the principle that public funds should not be used for sectarian purposes." Efforts in Congress to obtain appropriation of Federal funds to improve educational standards, however, were approved if not used "in such a way as to discriminate against any minority racial group," if there would be no Federal control of educational policy, and if said funds went only to such schools as were eligible for state support. Another statement in July called for the United States to place greater dependence on the demonstrated moral power of the United Nations General Assembly. "The supreme and critical issue is that of the free society versus the police State," it stated. This statement was prepared by the Commission on a Just and Durable Peace of which John Foster Dulles was chairman. It cautioned against yielding to a growing hysteria "at a time which is so critical that calmness of judgment is indispensable." In November, the executive committee reaffirmed also its opposition to compulsory military training.

WORLD COUNCIL OF CHRISTIAN EDUCATION

The name of the World's Sunday School Association was changed to World Council of Christian Education at its first post-war meeting in August 1947 in Birmingham, England. More than 100 delegates attended. The organization held its first meeting in 1889 and was incorporated in the United States in 1917. Since 1928, aid in organizing and supporting international interdenominational organizations has been given in India, China, Japan, Korea, Philippine Islands, Brazil, Argentina, Uruguay, Chile, Mexico, Cuba, Puerto Rico, South Africa, Belgian Congo, Southern Rhodesia, Egypt and Sudan, Palestine, Syria, France, Germany, Holland, Switzerland, and Bulgaria. In each of these countries had been started a Sunday School association or council of religious education. The world association was chiefly supported by individuals.

By 1947, it had 52 constituent units, national or international in scope, and was operating in 55 countries. The change in name resulted from expansion of the organization's work to include all phases of Christian education, extending beyond the limits of Sunday Schools. One of the first projects undertaken, following the change in name, was the establishing of a department of visual aids in Christian education. The new department set itself to review religious films and give counsel to organized bodies in projection of motion and still pictures. Offices were planned in London, New York, and Geneva, with staffs. J. Arthur Rank, British film producer who proposed the project, underwrote the expense of establishing the London office, and Mrs. Clifford S. Heinz of Pittsburgh, Pa. provided funds to set up the New York office. Rank started erecting a special studio in England for production of religious films. Other departments were set up for work with youth and children. In recognition of his work in behalf of religious motion pictures, Rank was honor guest in New York, May 9, 1947, at a meeting of the World's Sunday School Association, at a luncheon at which a scroll was given to him as a tribute. Francis S. Harmon, vice-president of the Motion Picture Producers and Distributors of America, welcomed Rank.

The general budget of the organization in 1947 was $94,074. Grants-in-aid were made in 1947 in Bible Lands to Brazil, Ceylon, China, Belgian Congo, Egypt and Sudan, Indonesia, Mexico, Philippine Republic, and Puerto Rico. An appropriation was also set aside for Japan and Korea as soon as such aid could be extended. Additional grants were made through the British Administrative Committee of the Council to India, Madagascar, and several European countries. Restoration projects were being carried out in war-torn areas, particularly in Finland, Holland, and Czechoslovakia. A new monthly religious magazine was founded for children in Greece with aid from the original World's Sunday School Association.

YOUNG MEN'S AND YOUNG WOMEN'S CHRISTIAN ASSOCIATIONS

The World's Committee of Young Men's Christian Associations met in plenary session in Edinburgh, Scotland in August 1947, for its first postwar meeting. The effects of war were faced by 250 delegates from some 48 countries, together with the new factors arising from the world military struggle as they were affecting young people. The delegates considered these matters on behalf of Y.M.C.A.s in 70 countries which were federated in the World's Alliance of Y.M.C.A.s, of which the committee was the permanent agent. The major emphases in the conclusions reached in a ten-day meeting were on reconstruction in war-devastated areas, on expansion and extension to meet urgent calls from unoccupied areas, and on a positive Christian message to the youth of all lands. It was found imperative to continue emergency services among prisoners of war and displaced persons, and to work for early resumption of normal pre-war services to national Y.M.C.A. organizations.

Dr. Tracy Strong, general secretary of the World's Committee of Y.M.C.A.s, subsequently made a field trip to South America, and as 1947 ended was preparing for a trip to London and Geneva, in continuation of a worldwide tour begun by him before the meeting in Edinburgh. He had visited, before August, enough areas to assist 38 consultants who visited 62 countries conducting an intensive survey of youth conditions. In summary of his observations, he said: "These are the persistent impressions which stand out vividly above all others: (a) suffering is worldwide, involving youth tragically, but youth still lives in hope; (b) youth seeks a larger share in life's controls and is coming to the fore in many countries where age heretofore has been completely dominant; (c) the times demand a greatly strengthened leadership; (d) there is a widespread yearning for the universal and a chance to participate effectively in a world movement; and (e) there is a hunger everywhere for spiritual reality."

The Edinburgh meeting marked the end of the presidency of the alliance and of the committee of Dr. John R. Mott, who was immediately made Honorary Life President of both. John Forrester-Paton of Alloa, Scotland was elected to succeed him in his active post. Permanent headquarters were established in Geneva, Switzerland. An office was established at 347 Madison Avenue, New York in the fall of 1947 as a result of action at Edinburgh looking toward expanding the world Y.M.C.A. program in international affairs and a closer liaison as a non-government agency with the United Nations. Wesley F. Rennie, associate general secretary, took his post Nov. 1, 1947 in New York as representative of the World's Committee in the United States.

The Y.M.C.A. of the United States reported a total of 1,540 Y.M.C.A.s with 73,906 dormitory beds and professional employed staff of 3,394. There were 207,320 volunteer workers and 1,665,722 members. Total expenditures were $84,685,300 in 1946. Total investment in plants and equipment was $231,323,800. Total personal counseling interviews was 1,266,992; jobs obtained, 14,556; meals served, 46,813,000. The Y.M.C.A. in the United States and Canada started a drive for $8,650,000 in May 1947, to restore buildings destroyed or damaged by war.

The Y.W.C.A. reported a constituency of 3,000,000 business and professional women, industrial workers, home women, war brides, college students, and teen-age girls. A goal of $2,100,000 for a three-year program of post-war reconstruction overseas was launched early in 1947 and oversubscribed. An additional $500,000 was required in 1946 and 1947 for domestic purposes. These sums were in addition to regular budgets.

By the end of 1947 the Y.W.C.A. had sent 20 secretaries to 16 countries. It already had 16 secretaries in ten countries and some form of aid was being given to 29 countries. Leadership training was going on in Delhi, India. In Shanghai, China, a joint Y.M.C.A.-Y.W.C.A. leadership program, launched in 1945, was continued. Exchange students came to the United States from China, Italy, France, Belgium, Great Britain, and Uruguay.

A series of 20 leadership institutes started by the Y.W.C.A. in the United States in the fall of 1946 was completed in the spring of 1947. Other meetings included seven area conferences in the summer of 1947 at which women and girls studied problems of budgets, health, and other economic questions. Ten delegates from the American Y.W.C.A. attended the first World's Council of the Y.W.C.A. in October in Hangchow, China with 22 nations represented.

CHURCH PEACE UNION

Conferences of non-Christian as well as Christian religious leaders are planned for 1948 under the auspices of the Church Peace Union, which was organized in February 1914, by Andrew Carnegie. Dr. Ralph W. Sockman of Christ Church (Methodist), New York City, was elected president, succeeding Dr. William Pierson Merrill, who became president emeritus after holding the post 30 years. In furtherance of plans for the conference the peace union's members joined with the American Association for the United Nations in attending the thirty-second annual meeting of the World Alliance for International Friendship through the Churches, in Boston, Nov. 14-16, 1947. A conference of Roman Catholics, Protestants, and Jews was held as preliminary preparation for the 1948 project. As the year 1947 ended, the alliance and the peace union were preparing to move from offices at 70 Fifth Avenue, New York, to new headquarters in a building purchased at 170 East Sixty-fourth Street, New York.

The Church Peace Union, at a semiannual meeting in June in Atlantic City, likewise attended by representatives of the three major religious faiths, of which its membership is composed, issued the following statement as to its position on the international situation, which received considerable publicity:

"The Church Peace Union believes that the ultimate test of all our decisions and policies, both national and international, is their effect on human beings. No consideration, however urgent or pressing, should precede or supersede the prior and predominating one of human rights, and equally, any proffered solution of today's complex concerns, economic, social or political, will be right and lasting only to the extent that it secures justice and decency for our fellow men across the world.

"This is one world, physically and scientifically, and it must be made one world politically and economically. To achieve this, all nations must think in terms of the whole rather than of any one part. The United Nations is the accepted instrument which should receive the wholehearted support of all nations. There must be no more by-passing of the United Nations. No country should depend upon its own financial or military might to achieve its ends.

"A tremendous force for strengthening the United Nations will come in our acceptance of it as the guarantor of peace rather than attempting this by our own strength. We have an obligation to work through the United Nations in matters relating to world peace rather than deciding for ourselves the international standards of peaceful conduct. In the United Nations, each nation has the opportunity to present and urge its own views.

Should such persuasive efforts fail, each nation is in duty bound to accept the larger will as expressed through the United Nations.

"The United States has the further obligation not to use its financial assistance abroad in support of reactionary elements nor to impose its own systems upon other peoples. Trade and tariff policies should be shaped, not for the benefit of groups or nations, but for the welfare of all mankind. American economic resources should be employed not merely for relief but for purposes of rehabilitation. We are anxious to see peoples of the earth become self-supporting, and to evolve their own way of life. We should give every encouragement for all peoples to choose freely their own systems of government.

"Men and women today are living in a state of nervous apprehension. There seem to be so many convincing reasons that we are drifting into an inevitable war. This trend must be arrested. It issues out of our fear, and fear can create out of its own dread the thing it contemplates. Let us rally our hopes. Hope of dealing successfully with the hard facts of life depends ultimately upon our moral enthusiasm and our spiritual insight. When we really want peace we shall find the skill and the wit to bring it to pass.

"The issue of war or peace lies in the minds and hearts of men. Pride, greed, hate, fear and ignorance are the primary causes of war. Organizations of men's devising, however excellent, can not of themselves insure peace. They must be animated by the right spirit, *viz.*, that of unselfishness, forgiveness, cooperation, patience and understanding. To instill and increase that spirit, not only in our leaders but among all the people, is the chief task of such organizations as the Church Peace Union and the inescapable duty of all who believe in the Fatherhood of God and the consequent brotherhood of man. Above all we are dependent upon the power and guidance of a loving and righteous God, the high and mighty ruler of the universe. 'In His will is our peace.'"

The Church Peace Union was represented by Dr. Henry A. Atkinson, general secretary, and Dr. John I. Knudson, head of the economics department, Brooklyn Polytechnic Institute, at a hearing of the Committee for Reciprocity Information in Washington, D. C. Jan. 14, 1947. On the question of continuing reciprocal trade agreements and broadening their scope, the peace union's conviction was registered that there must be "one world" or no world at all; that in this industrial age we depend for our security primarily on good economic relations among all the nations.

It was recommended that the United States take immediate steps to reduce trade barriers and make effective the International Trade Organization "under the aegis of the United Nations." It was maintained that "a high standard of living for our own country can not be maintained permanently in an impoverished world. Hungry and starving people, unable to make, sell, and buy goods, are a danger to the security of themselves, their neighbors, and the world. Charity can not continually level up accounts that can better be met on a basis of sound economics and the basic human right to adequate means of support through a job and fair wages. These rights depend upon good markets and fair treatment between buying and selling nations. . . .

"The only sound basis for the reconstruction of our world is through the recognition that our responsibility goes farther than the mere feeding of the people who are hungry, cold and discouraged now and need our help. They need more: the encouragement to start their lives anew so that all may have the opportunity to live 'free from want and the fear of want.'"

CHRISTIANS AND JEWS

The organizing of an International Council of Christians and Jews was begun at an international emergency conference in Seelisberg, Switzerland, in August 1947, with plans to open headquarters in Paris. The start was made to implement a suggestion for it from an international conference in Oxford, England, in the summer of 1946. Work was also begun in 1947 in organizing new councils of Christians and Jews in 17 cities in Europe to be affiliates. The over-all project was an expanding of activities in other countries patterned on the National Conference of Christians and Jews in the United States, which was started in 1928 and by 1947 was serving in 500 cities, including Chicago, Dallas, Baltimore, Des Moines, and others, where early beginnings originated following the rise of the Nazis to power in Germany. By 1947, there were 47 full-time and 17 part-time offices serving the 500 cities. Programs were being conducted at special times, as in Brotherhood Week in February, in 2,000 other communities. The total program cost $1,450,000 in 1946-47.

The national conference carried on its work through educational, religious, and community organizations, radio, motion pictures, theatres, newspapers, books, and magazines. Advertising of these activities was done with the aid of the Advertising Council of America. In 1946 the National Conference of Christians and Jews set up its commission on community organizations, founded the Religious Radio Association, and was sponsor of a study in religion and education with the American Council on Education.

Organizations modeled on the National Conference of Christians and Jews had existed for several years in Canada, Great Britain, South Africa, and Australia. As 1947 drew to a close, beginnings were being made to cultivate relations with the United Nations and its dependent organizations, particularly the United Nations Educational, Scientific, and Cultural Organization, to gain assistance in a fight on anti-Semitism, initiated in a document drawn up in Seelisberg, following discussions dealing with the object of eliminating "emphases in Christian religious teaching which tend unwittingly to encourage or perpetuate anti-Semitic attitudes in Christians." The statement was submitted to authorities of the various churches for study. Attending the Seelisberg Conference were Christians and Jews from Australia, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, France, Germany, Great Britain, Greece, Hungary, Italy, Luxemburg, Norway, Poland, Rumania, Switzerland, and the United States.

The denial by Congress in its Eightieth session of funds to complete a census of religious bodies estimated to need $471,000 for additional work on it through June 30, 1948, caused concern among leaders of Protestant, Roman Catholic, and Jewish bodies in 1947. The Association of Statisticians of American Religious Bodies, meeting in New York in November 1947, called on Congress to provide the needed funds and to make the taking of a Federal decennial census of religious bodies mandatory.

A religious census had been scheduled for 1946 but was suspended with an estimated 60 per cent of replies to questionnaires to the middle of 1947, when funds allotted by the Seventy-ninth Congress ran out. Religious leaders were becoming disturbed over the lack of adequate countrywide religious data, one of the reasons given being that the last decennial census of religious bodies in 1936 fell short of completeness because an estimated 20 per cent of clergymen and church officials did not fill out census information blanks.

MISSIONS

Social work projects of 13 denominational boards in Protestant communions affiliated with the Home Missions Council of North America used nearly $6,000,000 in 1946, a report to the Council's opening session of its annual meeting in Buck Hill Falls, Pa., in January 1947, stated. There were 251 institutions supported, nearly half of which were community centers. Others were day schools, boarding schools, children's homes, and residences for retired missionaries. Medical work was done in hospitals and health centers. More than 2,400 professional and maintenance workers were employed in these institutions. Special staff workers were appointed in one communion to set up centers in church buildings or local schools to meet the juvenile delinquency problem. Increased emphasis was placed upon improving race relations and promoting adult education. Other trends included closer cooperation with community agencies and local courts. The council adopted an operating budget of $306,000 for 1947. Dr. Mark A. Dawber, executive secretary of the Council, in his annual report, attributed much of the world's starvation not only to war but to a "selfish monopoly of land and resources." What was being done in the United States for human welfare would greatly affect attitudes in this field in other parts of the world, he added.

The work of the Home Missions Council in migrant camps reached an estimated 200,000 persons in 1946, according to Edith E. Lowry, executive secretary, in her report. The ministrations of the council included services of wide variety in 26 states, such as counseling, religious services for youth and adults, play nights, traveling libraries, clubs, child care, literacy programs, leadership training, labor relations, interpretation of migrant to community and community to migrant. A Student Veterans Emergency Committee to aid Protestant ex-servicemen and their families in temporary quarters with religious services was authorized for 1947, to have representatives also from the United Student Christian Council and Federal Council of the Churches of Christ in America.

Seven types of communities were analyzed and discussed by 200 religious educators at a national conference on the community and religious education, Dec. 2-5, 1947, in Columbus, O., under the auspices of the Home Missions Council and the International Council of Religious Education. The former represented 23 Protestant denominations in the United States and Canada, and 90 per cent of Protestants were reported to be working together on religious education projects under the auspices of the latter in the two countries. The latter had representatives of 40 denominations and 634 interdenominational councils affiliated. Its projects included week-day religious education as well as Sunday School programs. It was estimated that there were 2,000,000 pupils in 2,200 communities in 46 states in released time projects, in 1946, most of the projects being interdenominational. At least 4,730,000 boys and girls of the United States and Canada were estimated to have attended daily vacation Bible schools in 1946.

The types of communities studied in the December meetings were the rural-agricultural, rural-industrial, county seat towns, small cities, large cities, suburban and metropolitan communities. A findings committee worked out a statement of basic philosophy, a summary of conference discussions on major addresses and recommendations: "The church has a mandate in the very nature of its origin and existence to sense the ends of the community, to create a society which recognizes all individuals as children of God, and all possessions as God's gifts," the findings stated. A joint committee on community development was recommended to be set up by the sponsors of the Columbus meeting and the Federal Council of the Churches of Christ in America. The general secretaries of these agencies were asked to name a committee of theologians, sociologists, and religious educators to develop "an adequate and contemporary theological basis for the social, theological, and educational responsibility of the Church in the community." The sponsoring councils were asked to "examine their present experimental projects, reshaping and redirecting them in such a manner as is necessary to be in accord with the philosophy of community and to fulfill the purposes of this conference." Protestant lay groups were urged to develop programs which would interpret "careers of community, social, civic and political service as life-long opportunities for Christian service." The conference was the first attempt nationally by Christian educators to develop a strategy for the development of a Christian community. The findings were submitted to the sponsors of the conference for editing and publication after approval of them by each of the two councils. Harold E. Stassen, president of the International Council of Religious Education, was conference chairman.

THE FOREIGN MISSION FIELD

A total of $32,829,804 was expended for overseas mission work in the fiscal year 1946 by 100 Protestant mission boards and agencies in the United States and Canada affiliated with the Foreign Missions Conference of North America. More than half that amount, or $19,754,976, was sent to foreign fields by mission boards representing the following denominations: Seventh Day Adventists, Southern Baptist Convention, Methodist Church, Presbyterian Church in the U. S. A., Assemblies of God, Protestant Episcopal Church, and the Congregational Christian Church. Represented among the contributing boards and agencies were 66 Protestant denominations. The conference approved an over-all budget of $456,000 for its area and functional committees for 1947, at its fifty-third annual meeting Jan. 14-17, 1947, at Buck Hill Falls, Pa.

AMERICAN BIBLE SOCIETY

The American Bible Society adopted the largest budget in its history when it chose a goal of $2,981,645 for 1948, of which $1,200,000 was to help meet rising needs for Scriptures in war-torn countries. Among the appeals it received was one from Gen. Douglas MacArthur for Japan. Frank H. Mann, general secretary, following the adopting of the budget, said, if it were achieved it might be possible to meet the general's request for expansion of distribution in Japan.

The Society reported in 1947 that, as soon as the Second World War ended and before missionaries were back at their posts in Japan, Christian leaders there had asked for 150,000 Japanese Bibles and 2,500,000 Japanese New Testaments. A million copies of Scriptures, mostly New Testaments, had been sent by July 1947, and work was continued to supply more. As a means of doing so, plans were made to send 300 tons of paper and binding material to Japan to be made into 1,725,000 Bibles, Testaments, and Gospel selections to be printed and bound there.

When the Society held its 131st annual meeting in May 1947, Dr. Eric M. North, general secretary, reported 11,394,200 volumes distributed in 1946, nearly 4,000,000 of them in the United States. Its distribution abroad was expanded to include Russia when, for the first time in several decades, Scriptures were sent there. They were presented to Archbishop Alexei of Rostov, on the occasion of his visit to this country which began late in 1945 and ended in the spring of 1946 after a futile effort to reconcile the positions of the American Russian Orthodox Church with the Patriarchal Russian Orthodox Church. He later acknowledged receipt of them. The shipment contained 500 ancient Greek New Testaments, which, according to the acknowledgment, were distributed among theological students; 5,000 Russian New Testaments and 100,000 Russian Gospels.

Another gift of Scriptures was made, in October 1947 in New York City, by the Society, to Metropolitan Gregory of Leningrad and Novgorod, when 10,000 Bibles printed in Russian for the first time in this country and in the new Russian orthography and the Holy Synod version, were given to be shipped to Russia. In addition, 5.000 Russian New Testament and Psalms books, 100.000 Russian Gospels, and 1,000 Greek New Testaments were sent. Metropolitan Gregory, like

Archbishop Alexei, had been on a mission of reconciliation the result of which was undetermined when he returned to Russia.

PROTESTANT DENOMINATIONAL ACTIVITIES

By Preston King Sheldon
Editor and Writer

CHURCH CONSTRUCTION

While plans for building Protestant church edifices were announced in January 1947, at a meeting in New York of the North American Conference on Church Architecture, indicating a total cost of $650,000,000, building material shortages later were holding up the projects. A significant trend brought out by the announcement, however, was the unfavorable reaction to houses of worship as units of business buildings. "Skyscraper churches are definitely out," Elbert M. Conover, director of the Interdenominational Bureau of Architecture, said. A trend was noted toward more chapels on college campuses.

RELIGIOUS LIBERTY SURVEYS

Plans for a national organization of Protestants to maintain the actual separation of Church and State were made known in 1947, with representatives of several denominations at work on the project. J. M. Dawson, of the Southern Baptist Convention, who in 1946 had been elected executive secretary of the first joint conference committee on public relations ever to be organized, representing the Northern and Southern Baptist Conventions, the National Baptist Convention, Inc., and the National Baptist Convention of America, became acting secretary of the broader project. Members of the Baptist Joint Conference Committee, representing the major Baptist bodies in the United States, took active part in the Seventh Congress of the Baptist World Alliance in Copenhagen, Denmark, July 30 to Aug. 3, 1947, where in the final session a manifesto on religious liberty was drawn up under which early surveys in all countries were to be made to determine the exact status of religious liberty.

An indication as to the problems faced may be taken from the Baptist Joint Conference Committee's "Report from the Capital," published in Washington, D. C., in October 1947, where headquarters of the Baptist World Alliance were set up following the meeting in Copenhagen. "One of the most disturbing factors in the present deplorable tension between the United States and Russia is the Roman Catholic campaign against Communism," the statement said. "The intensification grows out of the functioning partnership between the United States and the Vatican established through the maintenance of Myron C. Taylor as the personal representative of the President to the Pope." To Baptists this conflict became one between "two totalitarianisms." Baptists find serious defects in both. J. M. Dawson explained the Baptist position to editors as follows: "In Communism, on the one hand, Baptists can not abide its atheism, materialistic philosophy, and denial of freedoms, particularly of religious freedom. In Catholicism, on the other hand, Baptists can not consent to its official intolerance with denial or abridgement of religious freedom to non-Catholics in all lands wherever it has continued dominant. . . . As to the true relationship existing between Church and State, Baptists hold the two should be entirely separate. This does not mean that State and Church should be hostile toward each other, but to the contrary, they should be sympathetically cooperative. . . ."

UNITED CHURCH CANVASS MOVEMENT

The United Church Canvass movement, which had been developed over a period of six years, had spread to every state in the United States, except Utah, Mississippi, and Virginia, by 1947. Communities in Gatun, Canal Zone, and in Honolulu were also conducting canvasses for funds in the fall of 1947 in collaboration with the United Church Canvass. The organization had affiliates from 19 major Protestant denominations, was at work in 300 communities, and had inquiries from 346 new ones by the time the fall canvassing was going on. More than 175,000 pieces of literature and other aids were distributed which was twice that used in any previous season. Each church raised its own funds, joining with others in general planning and promotion. Reports were based on fiscal years ending in different months all the way from Dec. 31, 1946 to April 30, 1947.

General increases in giving were attributable in great part to the canvassing. An all-time high for all purposes was reported by the United Stewardship Council's secretary-treasurer, Dr. Harry S. Myers. The total increase over the previous year was $64,223,647, making a new total of $678,122,157 for 26 denominations in the United States and Canada. Total benevolences increased 17 per cent. The Council held its first conference for laymen, in conjunction with the annual session in Buck Hill Falls, Pa. to emphasize lay responsibility in bringing financial resources to the support of religious projects.

LORD'S DAY ALLIANCE

Contributions from 20 Protestant denominations, totaling $175,000 to support an enlarged program, were sought by the Lord's Day Alliance as it laid plans for the year following its fifty-ninth annual meeting in New York, Dec. 3, 1947. The largest item among its projects was for $50,000 to cover organizing new units and placing of field secretaries. Dr. Harry L. Bowlby, general secretary, reported units had been organized in more than half the states of the Union. Its projects included education, law enforcement, an Americanization program, motion pictures, radio broadcasting, and a study of social conditions on Sundays to be compared with 10, 25, 40, and 50 years before, and a survey of the influence of modern inventions upon Sabbath observance.

The Alliance was informed in August by the Commissioner of Internal Revenue that an Internal Revenue Bureau ruling of June 16, 1944 and prior rulings "holding you not to be exempt under section 101(6) of Internal Revenue Code and corresponding provisions of prior revenue acts are modified." Reconsideration was given to the status of the Alliance as a tax exempt group, resulting in placing gifts to the Alliance in the category of non-taxable income.

SEVENTH DAY ADVENTISTS

The work of the Seventh Day Adventist churches throughout the world at the end of 1946 was being administered in 70 union missions and conferences, 137 local conferences, 204 regularly organized mission fields, and 535 institutions. There were 9,321 churches with 598,683 members. Membership outside North America was 378,561. The total offerings in tithes, gifts for missions, and local church work were $36,016,528, an increase of $4,475,593 over 1945. Relief offerings in 1946 were $1,414,391, an increase of $427,992 over 1945. Total tithes and offerings were $37,430,918, and this sum was greater than 1945 by $4,903,585, an increase of 15.1 per cent. Per capita was $62.52, or $6.09 higher than in 1945. The total of property investments was $118,565,592.

The denomination reported 14,443 Sabbath schools with 707,428 members, the gain over 1945 being 19,147, of which 6,491 were in North America and 12,656 overseas. There were 7,600 young people's societies in the world field, with 171,834 members, representing a drop of 282 societies and 19,819 members from 1945 totals, partially owing to failure to file accurate data.

There were 3,341 elementary and mission schools and 4,772 teachers, with an enrollment of 128,877 students, representing increases over 1945 of 152 schools and 5,296 students. In Seventh Day Adventist colleges and secondary schools throughout the world, students numbered 28,240 in 290 such institutions, having 3,356 teachers and helpers. In the United States and Canada, the college and academic enrollment rose from 17,844 in 1945 to 21,735 in 1946, an increase approximately of 22 per cent.

Fifty-one publishing centers were in operation which employed 1,542 workers. Distributing was in the hands of 2,666 persons. The total of periodicals published was 281. Books and other literature were in 188 languages. Retail sales of books and periodicals were $10,332,186, an increase of $1,040,591 or 11.2 per cent over 1945.

There were 167 sanitariums, hospitals, dispensaries, and treatment rooms caring for 112,904 patients and giving 1,431,415 treatments or medical services to out-patients. In service, were 267 physicians, 1,708 nurses, and 4,480 other employees, in addition to 1,242 nurses in training.

NORTHERN BAPTISTS

The Northern Baptist Convention, at its annual session in May 1947, at Atlantic City, adopted as its minimum unified budget $6,100,000 "plus secondary allotments, to the states and cities, based upon the amount of their undesignated contributions." A total of $1,300,000 was set up for undesignated funds in the budget's section on recurring needs.

The denomination listed in its 1947 year book, covering comparative statistics, a total of 1,592,349 members as of the end of the 1946 church year, and 1,541,991 as of the end of the 1947 church year. The difference was attributable to population shifts caused by the closing up of war industries and the depopulating of military sites for trainees. The drop occurred in non-resident members, going down from 347,406 to 331,342. Baptisms, however, rose from 52,856 to 57,286. There were 63 fewer churches in 1947, the new total being 7,180. All figures were affected by unsettled conditions and resultant incompleteness.

As 1947 drew to a close, the denomination's World Mission Crusade Fund drive for $14,000,000 had been oversubscribed by more than $2,000,000, and before Christmas more than $11,000,000 had been paid in, full quotas having been met by many churches. It was reported at the May convention in Atlantic City that foreign missions would get $4,000,000 of the total.

For the third consecutive year the Tax Vigilance Committee was opposed to two types of Federal tax laws. One permitted automatic deduction of 10 per cent on income tax returns for donations to religious, educational, and charitable work. The other was an objection to proposals to include clergymen under the Social Security Act as contrary to the principle of separation of Church and State. The automatic deduction was reported to be costing churches, hospitals, and educational institutions "the loss of many millions." Statistics were cited that, in the preceding 13 years, expenditures for these had decreased 19 per cent, or about $1,000,000,000, as against an increase in expenditures nationally for luxuries of $58,000,000,000.

Concern was also shown over a ruling by the United States Supreme Court that the Federal Bureau of Investigation had a right of search without warrant, and the convention expressed a conviction this was "in direct violation of Article 4 of the Bill of Rights.

The convention also called for churches represented to make all efforts to restore a spirit of friendly cooperation with Russia through exchanges of correspondence, discussion groups, lectures, literature, and study courses, cooperating with the Inter-

Church Committee of the American Russian Institute.

The American Baptist Foreign Mission Society raised in total income $1,580,646 in the fiscal year ended April 30. The income of the home mission society was $1,235,346.

SOUTHERN BAPTISTS

Gains in church membership were reported for 1946 in the 1947 handbook of the Southern Baptist Convention, which attributed new growth to resuming of peacetime activities and resettling of former military personnel in civilian life. New district Baptist associations were reported in Arkansas, California, Georgia, Louisiana, Tennessee, and Texas, bringing the total to 928 for the territory of the Convention. The greatest gain in number of churches was recorded in North Carolina, with Tennessee, Georgia, California, and Texas following. There were 244 churches reported as disbanded, but a net gain of 267 brought the total churches to 26,401. They were being served by 17,877 active pastors. Churches without services of pastors totaled 3,098.

A survey disclosed that 10,110 churches were on full-time, 8,772 half-time, 7,327 on quarter-time, and 192 on three-quarter time. Of the total, 3,450 were in cities having over 2,500 population; 3,562 in towns of 500 to 2,500; 4,173 in villages under 500 population, while 15,216 were in the open country.

Baptisms reported were 253,361, or 3,338 under 1945, when a centennial evangelistic crusade was being carried on. Church membership gained 213,751, bringing the total to 6,079,305. There were 467 new established church Sunday schools, making a total of 25,435. Total enrollments outside of mission schools were 3,738,924, a gain of 213,614. Including the mission Sunday schools, this total was 3,750,373 and increase was 225,063. Vacation Bible School enrollment reached a new record of 1,064,881. The number of such schools reached 13,145, an increase of 2,923.

The value of church properties reached a new high of $313,053,779 by the end of 1946, an increase of $36,964,008. The year's report showed that 24,979 churches owned church houses, a gain of 447. Homes for ministers reached 6,600, a gain of 1,205. Total debt on church property increased from $6,176,000 in the previous year to $16,450,000. This was offset by $44,280,000 in the building and reserve fund.

Gifts for local church work in 1946 totaled $87,986,245, an increase of $12,018,571. Gifts for missions and benevolences totaled $27,240,704, an increase of $4,749,953. Total gifts for all purposes were $115,226,949.

The annual meeting of the convention was held in St. Louis, Mo., May 7-11. It opposed appropriations by the Federal Government or any of the states to support sectarian institutions, by endorsing a proposed amendment to the Constitution of the United States, covered in House Joint Resolution 187 introduced by Representative Joseph R. Bryson of South Carolina. The Southern Baptists also evidenced "willingness to go further and prohibit the use of public monies for private, non-tax supported institutions of any kind." They also called for admitting to the United States 400,000 displaced persons the next four years.

CHURCH OF THE BRETHREN

The Church of the Brethren, in its year book for 1947, reported a total of 1,018 churches for the year ended Sept. 30, 1946, having a total membership of 182,497. There were 5,742 baptisms, with a net gain of 1,410. The church had 303 full-time and 472 part-time pastors.

The denomination expended $289,319 for missions and $1,137,268 for general education. Total receipts of service funds were $1,148,658, and expenditures were $1,030,401.

All general boards were combined on March 1, 1947 into a General Brotherhood Board having five commissions, *i.e.*, on foreign missions, ministry and home missions, Christian education, Christian service and finance. This action carried out a decision at the 1946 annual conference in Wenatchee, Wash. to increase unity, efficiency, and economy.

CONGREGATIONAL CHRISTIAN CHURCH

The proposed merger of the Congregational Christian Church with the Evangelical and Reformed Church was being discussed and votes taken throughout the United States in the fall of 1947, by congregations, district associations, and state conferences. The final vote will be taken April 1, 1948. The merger as proposed was the third in which the Congregational group had played a leading role in recent years and involved 700,000 members in the Evangelical and Reformed group, chiefly in Pennsylvania, Illinois, and Missouri. The Congregational Church, dating back to the *Mayflower* and beyond it, was joined by the Evangelical Protestant Church, a German-American group, in 1925, and by the Christian Church in 1931.

The total membership as of Jan. 1, 1947 in the Congregational Christian Church was 1,150,853, a rise of 20,029 over the previous year. The total number of churches was 5,783, a drop of 530. There were 145,633 members of young people's organizations in 3,321 parishes. Total benevolence contributions were $5,381,399, with 5,041 churches reporting. Total of invested funds by 1,930 churches was $34,593,156. Church school enrollments in 4,758 churches were 503,677, an increase of 9,548. There were 5,931 ministers, of whom 3,282 held pastorates. Home expenses reported by 4,969 churches came to $21,718,437, an increase of $2,417,316. The total value of property of the denomination as reported by 5,400 churches was $186,408,296. The American Board of Commissioners had an income of $1,538,402 for its fiscal year ended Aug. 31, 1946. Total income of all agencies was $7,392,771, and investments were $55,582,417. Reports from 1,925 churches listed a total of $31,225,000 additional investments.

DISCIPLES OF CHRIST

The Disciples of Christ reported, as of June 30, 1947, a total of 1,703,110 members in the United States and Canada and 1,838,397 members throughout the world. There were 7,844 churches in the United States and Canada and 8,713 in the world. Total receipts for the two North American countries was $10,376,544, compared with $9,941,052, the previous year. No figures were available for receipts outside North America for the year ended June 30, 1947.

The annual international convention, composed of delegates from the United States and Canada, was held in Buffalo, July 29 to Aug. 3, 1947, and followed by a five-day world convention, postponed from 1945, at which more than 7,000 delegates from 35 countries were reported in attendance. Resolutions adopted by the international delegates included a request to President Truman to grant an amnesty with restoration of civil rights to persons convicted of violation of the Selective Training and Service Act; that he "take immediate steps to discontinue the use by the armed forces of national defense funds for propaganda purposes and the use of military and civilian personnel in attempts to influence legislation and public opinion"; a reaffirmation of opposition to military training in peacetime; the urging of racial tolerance; condemnation of "any attempt on the part of any group, religious or otherwise, to lead us into a so-called 'holy war' against nations with whose political or economic philosophies we do not agree"; endorsement of the Stratton bill to permit entrance into the United States of 100,000 displaced persons a year for the next four years; a demand for separation of Church and State in the United States; the recall of Myron C. Taylor from the Vatican as representative of the President of the United States and the limiting of use of public funds for education to public schools without discrimination as to race or color; and the urging of a "renewed crusade" against use of alcoholic beverages through the initiating of a program of mass education, together with "enactment of such laws as are necessary to curb the avarice of the liquor industry."

The resolution against use of propaganda by the armed forces was introduced by a statement that "the subordination of the military establishment to civilian control is one of the basic constitutional principles of the Government of the United States." It declared "there are many ominous evidences that these safeguards are being ignored by the armed services and that these services are seeking to exercise undue influence over the political, economic, educational, and religious life of the nation, through the expenditure of huge and unreported amounts appropriated for national defense for propaganda purposes." Proposals for compulsory military conscription were also viewed as a contributory factor, along with use of military men in the administration of civil government at home and abroad. The plan of Secretary of State Marshall to provide economic aid to Europeans was endorsed, and the United States Government and governments of the world were urged "to make immediately available to the fullest extent of their abilities, food, clothing, shelter, medical care, and funds for the rehabilitation of national economies."

The World Convention, third to be held and which was scheduled for every five years, called for a United Christianity and "a spiritual quickening" to meet the challenge to "better and higher living" and resolved "that we make common cause with fellow-Christians the misgivings and depreciation we entertain toward governments, legislation, economic imperialism, and propaganda that seek the solution of international or interracial issues by unilaterial action or contemplated recourse to war." The World Convention adjourned until 1950.

PROTESTANT EPISCOPAL CHURCH

The Protestant Episcopal Church in 1947 devoted a great part of its efforts to securing materials for rebuilding churches in the Orient and in cooperating with other religious bodies in providing relief in Europe as well as the Far East. For this, the denomination began using a fund of more than $7,000,000 raised for rehabilitation and reconstruction of church properties destroyed in the Second World War. In addition, Presiding Bishop Henry Knox Sherrill who took over his duties as successor to Henry St. George Tucker early in January 1947, immediately began preparations for raising $1,000,000 a year in the next three years for his fund for world relief, disbursements from which were to go mostly through the World Council of Churches and the National Christian Councils in the Orient.

Missionaries were returning in 1947 to the Philippines and China conferences were initiated with leaders in Japan on plans for the future of Episcopal missions there. The number of missionaries returning to Japan, however, was limited, those who went being sent to assist native leaders in rebuilding church projects, a trend that had begun to take place before the Second World War. In Europe, former Suffragan Bishop J. I. Blair Larned of the Long Island Diocese U. S. A. took over a post as Bishop of the American Protestant Episcopal Churches in Europe, becoming a member of the World Council of Churches Reconstruction and Interchurch Aid Committee.

Documentary motion pictures made under the direction of a technical staff of the Department of Promotion of the Protestant Episcopal Church in Europe in 1946, were being shown in parishes and missions in the United States all through 1947. They showed various phases of relief work in Europe under the World Council of Churches. The films met with general approval and were released to Church

World Service and to other communions.

The acquisition of a large estate at Greenwich, Conn., for use as a permanent residence for the presiding bishop and as a conference center, was completed in 1947, and the National Council began holding its quarterly meetings there in the fall. The center became known as Seabury House, in honor of the first Bishop in America, Samuel Seabury, whose diocese was in Connecticut.

The National Council in April authorized a nationwide campaign of evangelism to start in 1948. The financing of this project was made part of a regular Every Member Canvass in the fall of 1947.

The House of Bishops, meeting in November in Winston-Salem, N. C., granted a request by a petition of the Philippine Independent Church that Episcopal bishops be permitted to confer the "gift of apostolic succession" on its episcopate. The Philippine Church, with some 2,000,000 baptized members and 35 bishops, comprised about 10 per cent of Christians in the Islands, and was reported to be the largest non-Roman Catholic communion there. The House of Bishops also decided to name a special committee to prepare and present at a future session a statement on the responsibilities of bishops in the administering of marriage canons which had been liberalized at the last triennial general convention of the Church in Philadelphia, in September 1946. Its committee on procedure under marriage legislation was directed to prepare any amendments needed to meet conditions revealed in the experience of administering the canons and have them ready for the consideration of the next Triennial General Convention, scheduled for the fall of 1949 in San Francisco.

The *Southern Churchman,* edited in Richmond, Va. in 1947, absorbed *The Chronicle,* an evangelical or "low church" periodical founded in 1901 and edited for 45 years by Alexander G. Cummings, rector of Christ Church, Poughkeepsie, N. Y., who died in September, 1946. The *Southern Churchman,* also a low church organ, was continued as the name.

EVANGELICAL AND REFORMED CHURCH

The triennial meeting of the general synod of this church was held July 9-16 in St. Louis, Mo. Reported by William E. Lampe, as secretary, was a total membership of 708,382 as of Dec. 31, 1946. There are 50,316 new members, but losses by death, transfer, and dropping cut it down to a net of 13,102. All synods, except one, had a net gain. The total gifts for benevolences was $3,915,321, a net gain of $740,000, nearly all for World Service. Giving for current expenses of congregations increased by more than $800,000, making a total of $8,856,306. Gifts for other congregational purposes, including debts, brought the total to $12,476,666, a gain of $1,236,005. The total giving for benevolences and congregational purposes in 1946 was $16,391,987, an average of $23.14 per member.

The value of church properties was $103,232,533, compared with a little less than $90,000,000 at the beginning of 1944. Church indebtedness, which had been $9,500,000 in 1941 and $6,000,000 in 1944, had been brought down, by the end of 1945, to $3,641,333. At the end of 1946, it stood at $2,936,036. Receipts for international missions were: $513,499, for the year ended Jan. 31, 1945; $507,628, 1946; and $576,869, 1947. Home missions receipts were: $472,323, year ended Jan. 31, 1945; $494,341, 1946; and $599,162, 1947.

Following consistent decreases in Sunday School enrollments for several years until it reached 414,382 in 1944, the number rose again in 1945 to 422,964, and in 1946 more than 10,000 were added, the new total being 433,410.

Among the actions taken at the triennial meeting of 1947 the general synod aligned itself with other Protestant denominations in protesting the appointment of Myron C. Taylor as representative of the President of the

United States to the Vatican "on the grounds that it violates the American principle of the separation of Church and State." The Federal Council of the Churches of Christ in America was urged to exercise its influence "to hasten" his recall.

Recommendations of the Commission on Christian Social Action concerning peace were adopted. Atomic energy, in order to benefit mankind, must be kept under public civilian control and should as speedily as possible be placed under a competent international atomic authority which will control its production and use, and enforce its suppression as a weapon of war.

All armaments should be brought under effective control by the United Nations as a step toward general disarmament, and the United States should cooperate to the fullest possible degree in transferring such international security and police powers as may be necessary to a small international force.

Compulsory military training and service should be outlawed by international agreement, and ought in no case be initiated unilaterally by the United States without a clear mandate from the United Nations.

Pacific islands and other territories which have come under the control of the United States should be placed under a trusteeship that is genuinely international, with full provision for international inspection at all times, and with administrative control in the hands of civilians.

Genuine international cooperation requires mutually advantageous economic cooperation and good faith, and as means towards these ends, the extension of reciprocal trade agreements with their provisions for conditional tariff reductions, and the support of an International Trade Organization.

Economic aid to needy nations should be granted by the United States in accordance with its great capacity to render such aid; however, such assistance should be extended within the framework of international agreement and under conditions which can be justified before the bar of world opinion as contributing to peace.

The Food and Agricultural Organization should be fully supported by the United States and encouraged to implement the principle of a world "ever normal granary."

The general synod also supported a guaranteed annual wage in principle to stabilize family life; disapproved any legislation which would reintroduce the use of injunction in labor disputes, limit collective bargaining to local units, or outlaw union security agreements; opposed indiscriminate infringement of the right to strike, and urged that, where it might be necessary to curb this right in the public interest, that workers be given corresponding protection to insure tenure of employment, adjustment of wages, and the redressing of grievances; and urged rural and urban members of the Evangelical and Reformed Church to study cooperatives and credit unions and, as need arose, to join consumers cooperatives.

FRIENDS

The American Friends Service Committee and the Friends Service Council of London and Dublin shared equally in 1947 in the Nobel Peace prize of 146,000 Swedish kroner or about $40,000. Dr. Henry L. Cadbury, chairman of the American committee, who received in Oslo, Norway, in December, the share awarded to his committee, spoke at the opening session of a meeting it held in New York before leaving. He emphasized the value of small groups working together to build international understanding. He put the responsibility for world peace partially on American policy. He said the committee had become concerned over the Russian situation and wanted to promote friendship with the Russians.

When the award was announced, it was learned that the American committee had administered $60,000,000 for charity in more than 20 devasted countries since the First World War.

For 300 years the Quakers had clung to the sturdy conviction that it was not right to kill, hating war, but giving energetically for works of mercy on battlefields in both World Wars, as well as in the interim in areas where sickness and need were found. Their ambulance corps and stretcher bearers were a familiar sight in the First World War. They provided medical relief in the Second World War, and in the days of reconstruction that followed continued to serve also by supplying food and clothing. In a year's operations in Hungary, it was reported that members of the American Friends Service Committee helped 5,000 students and industrial apprentices, thousands of children, workers on farms and in cities, old people and indigent middle class members. Dell Eberhardt of Berkeley, Calif., former member of a Quaker mission in Hungary, brought home reports of receiving cooperation of the Communist Minister of Welfare in Hungary.

In the United States, the Peace Section of the Committee reported, in 1947, 11 area offices manned by persons interested not only in peace education but in all projects of the service committee, which had been brought into being early in the First World War by representatives of the majority of the Yearly Meetings of the Religious Society of Friends in the United States. The impetus behind its formation had included the entry of the United States into that war. Its actual existence was preceded by sending financial contributions and ambulance workers to Europe to assist English Quakers who had reaffirmed their disbelief in war. Early in 1947 a new economic relations program was inaugurated in America and by the end of the year an economic relations committee had announced plans to bring together American representatives of labor, management, and government in conferences and institutes on mutual problems. The executive board of the American Friends Service Committee announced in 1946 a change in fiscal year, and, for the nine months ended Sept. 30, 1946, a total of $7,083,771 consolidated income was reported and total expenditures of $5,876,715. For the first fiscal year, ended Sept. 30, 1947, the total or consolidated income was $5,869,016 and expenditures $7,663,-193. The excess of expenditures over income was absorbed by a balance as of Sept. 30, 1946 of $3,083,976. The balance as of Sept. 30, 1947 was $1,289,800.

LUTHERAN

Delegates of Lutheran bodies from 30 countries on the five continents unanimously approved a constitution for the Lutheran World Convention at Lund, Sweden, in an assembly from June 30 to July 6, 1947, attended by more than 600 delegates and observers. The federation succeeded the Lutheran World Convention, organized in Eisenach, Germany in 1923. Convention meetings were held in Copenhagen, in 1928, and in Paris, in 1935, when a committee, headed by Abdel Ross Wentz, president of the Gettysburg, Pa. Theological Seminary, was appointed to prepare a draft of the constitution. A scheduled meeting of the convention in 1940 in the United States was canceled. The assembly in Lund, in organizing the federation, elected as its president Prof. Anders Nygren of Lund University, to succeed Archbishop Erling Eidem, Primate of the State Lutheran Church of Sweden. Among the Lutheran representatives at the gathering in 1947 in Lund were church leaders from occupied countries, churches in exile, in defeated countries, and mission areas. Fifty-five delegates and observers from all four zones in Germany attended. Most Lutheran churches in the federation had entered relations with the World Council of Churches in process of formation, which was to hold its first World Assembly in 1948.

The American Section of the Lutheran World Federation merged with the National Lutheran Council in the United States in September, 1947 in accordance with the constitution of the Lutheran World Federation adopted at Lund. The council, hitherto concerned with domestic problems, assumed the responsibilities of the former American Section which had dealt with international problems. The first official act of the council's executive committee was to set up an administrative board to handle emergencies between committee sessions. The Council became the national committee in the United States for the Lutheran Welfare Federation, and in a two-day session at the time of the merger with the American Section, approved allocations of funds for Lutheran World Action totaling more than $1,000,000.

Lutheran churches in the United States and Canada reported a total of 5,672,662 members at the end of 1946, an increase of 2.5 per cent over 1945, according to the annual statistical summary of the National Lutheran Council. Confirmed members totaled 3,941,121, a gain of 1.6 per cent as compared to an increase of 81,141 members in 1945 when the gain was 2.1 per cent. There were 16,241 churches, a rise of 83. The summary was based on statistics from 18 bodies covering all Lutherans in America. The highest numerical increase in 1946 as in 1945, was reported by the Missouri Lutheran Synod, which held its centennial convention in July, 1947, in Chicago, and had a gain of 47,541 baptized members, or 3.2 per cent. The Evangelical Lutheran Church reported the highest percentage increase, adding 6.1 per cent to its membership. The United Lutheran Church in America, largest of the bodies, reported a gain of 29,465 members, or 1.6 per cent. Losses were found in the Finnish Suomi Synod, which dropped 949 members and had a resulting total of 29,732, a 3.1 per cent loss, and in the Slovak Church, which decreased by 77 members to 9,367. Ordained ministers dropped by 188, totaling 14,200. During the year 1946, 154 parish schools were started, as compared to 819 in 1945, bringing the total to 24,283; their staffs were increased by 12,360 officers and teachers, bringing a new total of 297,174. They gained 16,949 pupils, the new total being 1,990,963. A heavy program of post-war building was indicated by the valuation of church property, which was raised by $44,912,718 to $475,935,415, and by an increase in indebtedness of $8,935,166 to $23,573,189.

The Lutheran churches in America in 1946 devoted $84,368,773 to local expenses and contributed $33,282,808 to church work at large, the total expenditures being $116,931,582, an increase of $12,684,791 in giving over 1945.

The executive board of the United Lutheran Church in America issued an appeal to its members in October, 1947 for strict conformance to food conserving in response to measures urged upon the United States by President Truman.

METHODISTS

The first ecumenical conference of Methodists in 16 years was held Sept. 24-Oct. 2, 1947, in Springfield, Mass., with 405 official representatives attending from 17 independent Methodist bodies. Plans were made to hold the next conference in 1951, in England, restoring the sessions to the normal decennial conference year, the 1941 conference having been postponed. The 1947 conference was the seventh such gathering. More than 50 addresses and reports were given in Springfield, Mass., though the findings had no legislative authority but were prepared as a message to more than 12,000,000 Methodists throughout the world.

Of these, the 1947 reports of the Methodist Church in the United States disclosed the total membership throughout the country to be 8,430,146, exclusive of 1,125,000 Negro Methodists belonging in three separate affiliates. There were also several smaller bodies. In addition to the membership in the Methodist Church in the United States, another 750,000 were listed abroad, in its missions. This larger body was sponsor of a rural life conference in Lincoln, Neb., July 29-31, 1947, attended by 2,100 country pastors, farmers, and church officials, at which the problems of rural communities were discussed. A youth conference was held Dec. 30, 1946 to Jan. 2, 1947, in Cleveland, O., attended by 10,000 young people and leaders, and reported to be the largest Methodist gathering in 100 years.

A total of $10,177,558 was appropriated for 1948-49 for missions at a meeting of the Board of Missions and Church Extension of the Methodist Church, in Buck Hill Falls, in December 1947. Of this, $3,857,359 was allocated to Foreign Missions for use in Europe, Asia, Africa, and South America; $2,048,535 to the Division of Home Missions and $4,271,664 to the Woman's Division of Christian Service, for domestic and overseas uses. This was the largest such appropriation in the history of the Methodist Church. The division urged pardoning of conscientious objectors by President Truman in a resolution drawn up and approved in Buck Hill Falls. "We believe that the time has now come for the mobilization of the Christian women of the whole world in a determined crusade for the prevention of war," another resolution by the women said. "We recommend that all Methodist women pledge themselves to a concerted effort to combat the talk of war, to halt the menacing cynicism, fear, and suspicion evident in our press and increasingly prevalent among our people. As a means of counteracting these disintegrating forces, we suggest: emphasis upon the accomplishments of the United Nations, as opposed to criticism of its progress; faith in the power of good will and cooperation instead of force in the settlement of international problems; study and exposure of propaganda whether in the press or in political action; cooperation with all efforts to comply with the pronouncements of the United Nations 'against false reporting and inciting a new war.' "

PRESBYTERIAN CHURCH, U. S. A.

The membership of the Presbyterian Church in the U. S. A., or Northern Presbyterians, rose from 2,174,530 to 2,234,798 as of March 31, 1947. The total contributions were $78,567,368, exceeding those of the previous year by $18,884,987, and breaking all previous records both in membership and contributions. The per capita giving was $36.15. The denomination changed its fiscal year to coincide with the calendar year and set itself to raise $17,444,231 for benevolences in 1948, a 50 per cent increase over the previous year's budget.

The Restoration Fund, a drive for which began June 1, 1945, had reached $23,830,624 by Christmas in 1947, on the way to a goal of $27,000,000 for post-war relief and rehabilitation. Among leading projects going forward was a drive for 1,000,000 new members and 300 new churches, together with the organizing of a National Council of Presbyterian Men. Lay representatives were scheduled to meet in Chicago, in February 1948, to draw up plans for this. The Covenant-First Presbyterian Church was dedicated in October, 1947 in Washington, D. C., as the National Presbyterian Church, following a decision reached at the 159th General Assembly in May. The Board of Christian Education initiated a new curriculum with the aim to spend more than $2,000,000 in the next few years, integrating home and parental interests with child education. Textbooks were decided upon to replace the familiar Sunday school quarterlies, leaflets, and other helps.

The Northern Presbyterians and Southern Presbyterians were represented at a two-day meeting in Rehoboth, Md., in October, bringing such representatives together for the first time since the Civil War, which caused a split in this as in other Protestant groups. Unity and efforts at reunion were promoted with more than eight years of negotiations behind the two groups who began studying a plan to reunite, with the expectation of completing the study in a year.

The principal difficulty holding up

proceedings had to do with property rights, only a few differences remaining, it was reported by Dr. William Barrow Pugh, Stated Clerk of the General Assembly of the Northern group, or Presbyterian Church in the U. S. A.

PRESBYTERIAN CHURCH, U. S.

The Southern Presbyterian Church, as the Presbyterian Church in the United States came to be known, which had 3,542 churches reported at its 87th General Assembly in May, 1947 at Montreat, N. C., a total of 613,701 members, exclusive of ministers, having 2,636 of the latter. A total of $26,061,129 was raised in contributions, an increase of $4,873,760, and a per capita of $42.81. Sunday school enrollment was 448,262.

Overtures at the May assembly meeting, seeking withdrawal from the Federal Council of the Churches of Christ in America, were returned to the Presbyteries for action and report at the 1948 session of the General Assembly, in Atlanta, Ga., in May. A five-year program of progress was authorized to expand the denomination's work through evangelism, with a minimum goal of 100,000 new members annually for the period. A goal of 1,250 chapels was set, 250 a year, and appropriations of a total of $7,850,000, apportioned to foreign missions, $4,000,000; home missions, $1,500,000; Christian Education, $750,000; religious education, $500,000; war relief, $600,000; training schools, $250,000; and Negro work, $250,000.

UNITED PRESBYTERIAN CHURCH

This Church reported, as of March 31, 1947, a total of 202,605 members. Congregational expenses were $5,308,212; benevolences, $2,133,430; funds used for all purposes, $7,696,863.

REFORMED CHURCH IN AMERICA

The number of congregations reported by this denomination in 1947 was 748; ministers, 901; total communicants, 178,318; enrollments in church schools, 130,142. A total of $1,795,741 was raised for benevolences, and $5,740,390 was raised for congregational expenses. Drafting of a proposed constitution, doctrinal statement, and forms of worship was being done in 1947, preparatory to the next move in a plan for merging the Reformed Church in America with the United Presbyterian Church. These were to be gone over early in 1948 for restatement and to be submitted to the General Synod of the Reformed Church and the General Assembly of the Presbyterians in May 1948.

SALVATION ARMY

Commissioner John J. Allan, who was appointed chief of staff of the International Salvation Army in September 1946, with his office in London, returned to New York in November 1947 for a month's stay, including a short trip to the West Indies, in December, for the sixtieth anniversary congress of the Salvation Army there. He said there were 100 Salvation Army officers in ten relief teams in western Europe, undertaking a needed post-war relief job. Eight children's homes were being maintained and one home for the aged. Distributions were being made of food and clothing and other necessities, special attention in food distribution being given to the aged. Major emphasis was being placed on rehabilitation of women and children and the restoration of family life.

The commissioner found different attitudes towards religion among Communist leaders in western Europe. He said the mayor of Prague, Czechoslovakia, a Communist, received him cordially and spoke well of the Salvation Army. He found no restrictions on religious liberty there, but it was not true in other cases. It depended upon individuals, he said. He found a resurgence of interest in religion in western Europe wherever he went, and that young people were attending Salvation Army services in large numbers.

The Salvation Army, in a survey of its work in the Second World War, found that, on 26 fronts, 115,761,055 persons had visited Salvation Army units, from Pearl Harbor Day, Dec. 7, 1941, to VJ-Day, Sept. 2, 1945. The organization had set up 4,000 canteens, service clubs, huts, and other units for men and women, and performed more than 225,000,000 services of various types for American and Allied personnel. Its distribution of articles included 50,613,804 envelopes and postcards and 3,209,842 pieces of literature. The clubs provided sleeping accommodations for 1,598,097 servicemen. Individuals receiving information numbered 8,842,834. Visits were made to 594,033 hospital patients, and home hospitality provided for 285,610 servicemen and their families. Personal and accommodation services totaled 21,936,520. The total program had the aid of 1,605,194 volunteers.

Throughout the world there were 17,915 corps and outposts of the Salvation Army as of Sept. 30, 1946, the reports in some territories being those of 1938, because of unsettled conditions. There were 1,700 social institutions and agencies, 985 day schools, and 27,811 officers and cadets. Personnel included 15,989 persons without rank; 104,324 local senior and young people's officers; 39,173 senior bandsmen; 89,352 singers; and 30,471 corps cadets. An even 100 periodicals were being published having an aggregate of 1,638,446 copies per issue.

Beds occupied during the year ended Sept. 30, 1946, so far as statistics were available, totaled 11,422,475, and meals supplied were 34,172,355. Men supplied with work numbered 65,445. Situations were found for 68,650 and only 232 went to inebriates' homes. There were 472 food depots which accommodated 41,941. There were 123 children's homes, accommodating 5,013, and 27 industrial and boarding schools, accommodating 2,735. In maternity homes were received 31,321 women. The army had 14 farms under supervision. A total affiliated membership reaching to 4,000,000 throughout the world was reported in 1947.

As numerous relief agencies settled down to the task of post-war reconstruction and rehabilitation, the Salvation Army was continuing, in the United States, its social service program, maintaining children's homes and hospitals, family welfare bureaus, employment bureaus, men's industrial institutions, youth centers, boys' clubs and summer camps, and its work in prisons.

CHRISTIAN SCIENCE CHURCH

The First Church of Christ, Scientist, Boston, Mass., and its branches throughout the world numbering more than 2,900, reported more than 30 tons of Christian Science books and periodicals had been given out in Germany as the result of a two-year drive. There were 100 college organizations.

The Mother Church in Boston began its relief program in 1941. It served Christian Science servicemen at military and naval training centers. Christian Science workers were assigned to nearly all Veterans Hospitals in the United States and Canada, in addition to Army and Navy hospitals. The story of its wartime activities appeared in book form early in 1947, and the period covered was from 1939-1946.

Second honorary mention went to the international daily, the *Christian Science Monitor,* for its encouragement of a better understanding among men of all creeds, races, and national origins, in the F. Wayland Ayer Exhibition of Newspaper Typography. A citation was also issued by the Institution for American Democracy, Inc., New York City. The translation of the textbook of Christian Science, *Science and Health with Key to the Scriptures,* by Mary Baker Eddy, into Spanish, was announced in 1947. Transcribed radio programs were broadcast over nearly 300 radio stations in the United States, including Alaska and Hawaii, in Cuba, Canada, New Zealand, and Australia. Other programs were also broadcast.

UNITARIANS

The Unitarian Service Committee had $1,500,000 as its 1947 goal for post-war relief. Total membership in 348 active churches was reported as 69,104. The United Unitarian Appeal for funds reached $223,509. Contributions for other philanthropic purposes came to $120,334. Current expenses ran to $2,605,355. The denomination used newspaper advertising at a cost of $36,560. The church year ended April 30, 1947. The denomination's 122d annual meeting was held in Boston May 22, 1947. Its resolutions covered upholding civil liberties including the right to political opinions in public and private life. The establishing of police and military forces for the United Nations and simultaneously the progressive disarmament of all member nations was urged. Opposition was raised to compulsory peacetime military training.

THE ROMAN CATHOLIC CHURCH

By Henry P. Lefebure
National Catholic Welfare Conference

STATISTICS

Membership in the Catholic Church in the United States in 1947 totaled 24,268,173, according to figures given by the official *Catholic Directory*. A record total of 18,754 Catholic parishes were in operation, with 13,819 of them having resident pastors. There were, in addition, 5,257 chapels and 4,935 mission churches.

There were 162 members of the American Hierarchy presiding over 101 dioceses and 22 archdioceses. These also include, for statistical purposes as American dioceses, the Vicariate-Apostolic of Alaska, the Abbatia Nullius of Belmont Abbey, N. C., and the Pittsburgh (Greek Rite) and the Ukranian Greek Catholic Dioceses. The number of ordained clergymen is 40,470, the highest on record. Among professed religious, the number of Sisters has increased to 140,563 and the number of Brothers to 6,938. The number of seminarians has increased to 23,135. A total of 100,628 converts entered the Church during the year. Infant baptisms numbered 738,314, and the total number of deaths was 258,588.

As the introduction and keynote of this account of the year's activity, there is given an excerpt from the report to the American Archbishops and Bishops by the Most Reverend John T. McNicholas, chairman of the Administrative Board of the National Catholic Welfare Conference, the central agency for the unification, coordination, and organization of Catholic activities in the United States. Archbishop McNicholas said that, as another year of the post-war period moved onward, the lines of cleavage between East and West became more sharply and, at the same time, more clearly drawn. Similarly, the people of our nation, and, indeed, of the world became daily more conscious of the basic issues at stake and more firmly entrenched in their alignment with respect to them. Totalitarian materialism emerged more plainly than ever before as the force engaged in a mortal struggle with western Christian civilization. Religion and the institutions of religion were in the very forefront, not only where the forces actually were at grips, as in certain areas of Europe and Asia, but wherever the philosophy of secularism was powerful enough to assert itself.

DECLARATION OF THE AMERICAN HIERARCHY

Nov. 12 to 14 were the dates of the Annual General Meeting of the Cardinals, Archbishops, and Bishops held at Catholic University and attended by 130 members of the hierarchy. At the close of the Meeting, the Bishops issued a statement entitled "Secularism" which was signed in their names by the Administrative Board of the N.C.W.C.

In what it called "perhaps the gravest crisis in all history," the statement appealed to all who believe in God to "make that belief practical in their workaday lives," to "look across the real differences which unfortunately divide them, to the common danger that threatens," to "refuse to let a common enemy capitalize on those differences to the detriment of social unity." If this were done, the statement added, "we might begin to see a way out of the chaos that impends."

Step by step, the Bishops considered the baneful influence of secularism upon life in its various aspects. They said:

> "Secularism, in its impact on the individual, blinds him to his responsibility to God . . . The greatest moral catastrophe of our age is the growing number of Christians who lack a sense of sin because personal responsibility to God is not a moving force in their lives.
>
> "Secularism has wrought havoc in the family . . . It has set the will and convenience of husband and wife in the place that Christian thought gives to the Will of God and the good of society.
>
> "In no field of social activity has secularism done more harm than in education . . . Our youth problems would not be so grave if the place of God in life were emphasized in the rearing of children. There would be less danger for the future of our democratic institutions if secularism were not deeply intrenched in much of our thinking on education."
>
> The Christian view of social order "lays the blame for instability in our social structure on human failure rather than on blind and incontrollable forces. It faces the plain fact that there is something gravely wrong in our economic life and sees in secularism, with its disregard of God and God's law, a potent factor in creating the moral atmosphere which has favored the growth of this evil.
>
> "In the international community there can be only one real bond of sane common action—the natural law which calls upon God, its Author—and derives from Him its sanctions . . . Men long for peace and order, but the world stands on the brink of chaos."

The statement admits that "Christians have often failed to meet their responsibilities and by their transgressions have permitted ugly growths to mar the institutions of their culture." "But," it adds, "wherever, despite their lapses, they have held steadfastly to their Christian ideals, the way to effective reform and progress has been kept open."

"In the dark days ahead," the statement concluded, "we dare not follow the secularist philosophy . . . We must be true to our historic Christian culture. If all who believe in God would make that belief practical in their workaday lives, if they would see to it that their children are definitely imbued with that belief and trained in the observance of God's way of life, if they would look across the real differences which unfortunately divide them, to the common danger that threatens, if they would steadfastly refuse to let a common enemy capitalize on the differences to the detriment of social unity, we might begin to see a way out of the chaos that impends."

COMMITTEE ON MOTION PICTURES

The report of the Committee on Motion Pictures to the General Meeting of the Bishops analyzed the annual report of the National Legion of Decency, noting the increased number of Class B films (objectionable in part) over previous years. Grave concern over the problem arising from the production of motion pictures based on immoral books was also expressed. The practice of making such pictures tends to promote the writing and increase the sale of immoral literature, thus constituting a menace to the moral standards of the American people.

CATHOLIC COMMITTEE FOR REFUGEES

In the course of the year's activities, the Catholic Committee for Refugees met many special problems in addition to its usual work of interviewing, aiding, guiding, and settling refugees coming or referred to it.

Considerable time and money were devoted to the problem of stowaways and other transients, who would have faced slave labor had they been returned to their country of origin. Sixty-nine persons in this category were aided, most of them being sent to South American countries.

Refugees who fled to Shanghai and who wished to emigrate to countries where some opportunity might await them or to return to their own countries were aided by the Shanghai Committee for Catholic Refugees. About half of them have been settled, and a number of them are expected to arrive in San Francisco soon.

Priests have been outfitted, orphans cared for, and a group of 231 Polish children settled in this country.

NEW ADMINISTRATIVE BOARD, N.C.W.C.

During the meeting the bishops chose the new Administrative Board, N.C.W.C. which subsequently organized as follows: Archbishop John T. McNicholas, O.P. of Cincinnati, chairman; Archbishop Richard J. Cushing of Boston, vice chairman of the Board and episcopal chairman of the N.C.W.C. Youth Department; Bishop John Mark Gannon of Erie, treasurer; Bishop John F. Noll of Fort Wayne, secretary; Archbishop Robert E. Lucey of San Antonio, episcopal chairman of the Department of Lay Organizations; Archbishop Joseph E. Ritter of St. Louis, episcopal chairman of the Department of Catholic Action Study; Archbishop James H. Ryan of Omaha, episcopal chairman of the Department of Education; Bishop Karl J. Alter of Toledo, episcopal chairman of the Department of Social Action; Bishop Emmet M. Walsh of Charleston, episcopal chairman of the Legal Department; Bishop Michael J. Ready of Columbus, episcopal chairman of the Press Department.

The general meeting voted unanimously to conduct the Bishops Emergency and Relief collection again in 1948, on Laetare Sunday where this is practical. It also voted to make the work of the Cana Conference a special activity and interest of the Family Life Bureau, N.C.W.C. The appointment by the Administrative Board of a special committee of Bishops to represent the N.C.W.C. in problems relating to the Church in the occupied areas in the Pacific was authorized.

WAR RELIEF SERVICES—N.C.W.C.

From funds derived from the Bishop's Relief Campaign for Victims of War and the National War Fund, as well as from the proceeds of its various gifts-in-kind campaigns conducted during the past fiscal year, War Relief Services—N.C.W.C. was able to forward to the war-devastated countries during the year a total of 25,266,197 pounds of food, clothing, and medicine which had an approximate value of $11,165,867.04. These contributions brought the total amount of relief that has been extended through War Relief Services—N.C.W.C. from various sources, since its inauguration in 1943, to the grand total of approximately 142,241,000 pounds of supplies which had a total value of more than $107,350,000.

Austria, Germany, Hungary, Italy, Poland, and Rumania continued to be areas of most critical need in Europe, and the recipients of a large share of the relief that was forwarded abroad by this Catholic agency. Conditions in the Far East were almost as critical as those of Europe, and there were thousands of war victims in China, Japan, Korea and the Philippines who were dependent upon the charity of the Church. The Catholic agencies of these countries were supplied also with food, clothing, and medicine, particularly for programs for children.

Six major campaigns for funds and gifts-in-kind were conducted: the Bishops' Relief Campaign for Victims of War which began on Laetare Sunday, March 16, 1947, and which realized over $7,500,000 for foreign relief purposes; the Clothe the War Stricken Campaign in which 3,640,000 pounds of clothing were gathered, a campaign for Clothing for the Religious and Clergy of Europe and the Far East taken up principally among the Catholic clergy of the United States; the continuing Children in Need Campaign of the National Council of Catholic Women which has now reached a total of approximately 750,000 pounds of children's and infants' clothing; a special campaign conducted by the Council for soap and towels which gathered 30,000 pounds of these invaluable articles; and a special family assistance campaign which is being conducted by the Catholic Daughters of America.

The food collection taken up in 115 dioceses throughout the country during Thanksgiving week, with a goal of 25,000,000 cans, actually succeeded in collecting more than 60,000,000 pounds of food.

During this period, War Relief Services—N.C.W.C. also continued to lend aid and assistance to the Displaced Persons in the camps in Germany, Austria, Italy, and other areas, and began a program of cooperation with the Vatican Migration Bureau, established by the Secretariat of State of the Vatican, looking toward the solution of this most perplexing problem through plans for resettlement.

THE NATIONAL CATHOLIC COMMUNITY SERVICE

The National Catholic Community Service, member agency of the United Service Organizations, Inc., will continue its welfare program for the nation's peacetime defense forces after the dissolution of USO in December, 1947. Objectives of the peacetime NCCS program have been outlined as follows: (1) to serve the spiritual, educational, recreational, and social needs of our peace defense forces; (2) to coordinate and stimulate work of local Catholic groups in providing service to Veterans Hospitals.

While the major resources of the future NCCS program will be devoted to the welfare of the defense forces, the Bishops have also authorized NCCS "to offer advisory and consultative service on a limited basis to dioceses requesting assistance in organization and development of Catholic Community Service programs for civilians, with particular reference to Catholic Community Centers and adult leisure-time recreational programs."

CATHOLIC EDUCATION

Enrollment in American Catholic schools, according to N.C.W.C. Department of Education figures, was as follows: Elementary, 2,147,311, a gain of 2.9 per cent in a year's period, which "conforms to the increased birth rate of the latter 30's and early 40's; Secondary, 443,004, a year's gain of 5.3 per cent; College, 231,845," a remarkable increase "beyond the peak enrollment of 161,886 in 1940." The gain partly accounted for by the enrollment of veterans is in keeping with the upswing in all colleges and universities in the United States. The United States Office of Education has estimated that there are enrolled in these institutions, 2,100,000 that, by the fall of 1948 the figure will be 2,700,000, and that 1950 will see 3,300,000 in these schools. These figures include all post-high-school education and not merely colleges of liberal arts and sciences.

THE CATHOLIC PRESS

The N.C.W.C. News Service, serving the Catholic Press, stated that events of Catholic importance and interest in a quantity and diversity never before equalled in the history of the Service were reported during the year.

"The deadly earnest struggle of the West against atheistic communism" was widely manifest, and "along with this, there came ever-widening and ruthless assaults on religion," the Catholic Church often being singled out to bear the brunt of this persecution.

"A sharply different type of reporting became essential" to meet the challenges of the new year. More careful analysis with background material was needed to present and clarify confusing issues, and more on-the-spot probing to keep pace with swiftly moving events.

SOCIAL ACTION

Highlights in the field of social action were the Family Life Conference and the pledge of renewal of the marriage promises at a Holy Hour in 40 dioceses at the same time; special work on atomic energy; special work with international Catholic organizations; decision to inaugurate economic conferences on Negro problems through the Catholic Conference on Industrial Problems; preparation and publication of material on Communism; and special work with business representatives and personnel men.

The N.C.W.C. Social Action Department issued recommendations calling for the following: "1. A group of priests in each diocese working together under a director (wherever possible formally appointed by the Bishop) to make Catholic social teaching known; 2. A group of laymen and laywomen around them who know or want to know Catholic social teaching and be apostles for it; 3. Development of a program of education in the diocese in schools, youth organizations, adult organizations, and the press; 4. Diocesan organization of men, women and youth so as to facilitate a program of education in Catholic Social Teaching."

LAYMEN'S ACTIVITY

Affiliated men's societies of the National Council of Catholic Men increased from 2,954 to 3,130.

Among radio activities, June 22, 1947 marked the 900th consecutive broadcast of the Catholic Hour. Currently carried by 113 stations of the National Broadcasting Company, the Catholic Hour received again in 1947 a citation from the Institute for Education by Radio, for its "superior presentation of religious thought accompanied by the best of liturgical music." The younger Hour of Faith, broadcast over 55 stations of the American Broadcasting Company, brought in many commendatory letters. In October 1946, the N.C.C.M. undertook the production of the Catholic program on the Mutual Broadcasting System's religious series, entitled Faith in Our Time, carried over 77 network stations.

An important part of the N.C.C.M. program is the distribution of literature requested mainly by listeners to its three programs. Almost 500,000 descriptive radio circulars were mailed out and thousands of printed radio talks were distributed upon request.

In September 1947, the Council played a prominent part in the Catholic Tri-State Congress in Grand Rapids, Mich. The five-day Congress was described in many circles as one of the most significant lay undertakings in the field of Catholic action.

CATHOLIC WOMEN

The National Council of Catholic Women enjoyed a steady growth in affiliations, 136 over the previous year. The Council now lists 75 Diocesan Councils, with Dallas organized as the 76th in September 1947. Eighteen national organizations of women are affiliated, seven state organizations, and a total of 4,709 local organizations, of which over 100 are in dioceses where diocesan councils are not yet established.

The year 1947 saw the transfer of the National Catholic School of Social Service, for 27 years a national project entrusted to the N.C.C.W. by the Bishops, to the Catholic University. The N.C.C.W. Board has urged its affiliates, however, to continue their interest in directing young women to the career of social service and to the obtaining of such training under Catholic auspices.

The biennial convention in Kansas City demonstrated the growth of the Council, with 1,300 women attending, among them voting delegates from affiliated organizations from 31 states and 67 dioceses, the largest number (581) in the history of N.C.C.W. conventions.

YOUTH WORK

National Youth Work, as centered in the N.C.W.C. Youth Department, was concerned with exchanging information useful and necessary for the proper functioning of diocesan programs and other groups interested in the Catholic Youth Apostolate.

In March, 1947, the N.C.W.C. Youth Department surveyed the situation of diocesan youth work in this country. From 76 dioceses answering, it was found that 64 have diocesan youth programs. Of 423 persons in diocesan youth work, 261 are priests and 162 professional lay workers.

A National Conference on Catholic Youth Work, called by the Episcopal Chairman, met in Cleveland, May 19-21, 1947. Six hundred persons attended. The program, under the title Unity in the Youth Apostolate, was designed to clarify purposes and contribute toward better coordination on diocesan and national levels.

The National Catholic Youth Council has been approved as the national federating machinery for Catholic youth groups in the United States. The March survey revealed that 16 dioceses have Diocesan Youth Councils, with Councils being formed in nine others. Five dioceses reported inactive or discontinued Councils.

During 1947, the Department gave high priority to supervising and promoting the two national student federations comprising the College and University Section of NCYC. Mainly, this activity was based on certain currents in national and international student life. The present active condition of the Newman Club Federation, with 310 clubs affiliated, and the National Federation of Catholic College students, with 147 member colleges, is due partly to increased student activities outside the Catholic sphere.

THE CONFRATERNITY OF CHRISTIAN DOCTRINE

During the year, diocesan directors were appointed for Columbus, Pueblo, and the recently erected dioceses of Evansville and Lafayette, Ind., and Madison, Wis., bringing the total to 118. Assistant directors were appointed in 13 archdioceses and dioceses. At the 11th Annual Meeting of Directors, held in conjunction with the Eighth National Congress, it was pointed out that more emphasis must be given to spiritual motivation.

At Catholic University, persons experienced in Confraternity work conducted a six-week summer school session with academic credit, providing intensive training for Confraternity activity through workshops, and classes. The enrollment totalled 106 priests, sisters, seminarians, lay men and women from 32 dioceses of the United States, Canada, and South America.

In January 1947, Rev. Cyrilo Elton, SS.CC. of the Catholic Universities of Santiago, Chile, and Lima, Peru, joined the staff to establish contact with the catechetical centers of Central and South America. The first two numbers of a bi-annual Confraternity Bulletin in Spanish were sent to hierarchy, clergy, and laity of Central and South America as well as to Latin-American students attending colleges and universities in the United States.

OTHER EVENTS

A notable Declaration of Human Rights for the person, family, and State, both as a domestic and an international community, subsequently widely praised, was prepared by a committee of philosophers and jurists at the request of the National Catholic Welfare Conference, Washington, D. C., and forwarded to the United Nations.

February was highlighted by the U. S. visit of Cardinal Konrad von Preysing, Berlin Bishop. His six-week tour covered the nation. Guest of U. S. Hierarchy, he came to thank Americans for their generosity to war-impoverished Germany. He visited 15 major cities; was feted by three Cardinals, 11 Archbishops, 40 Bishops; met thousands of clergy and hundreds of thousands of laity.

At this time also the U. S. Supreme Court upheld New Jersey's school bus law permitting non-public school children to ride in public buses.

During the month of March, when he marked his 71st birthday and eighth anniversary of his election and coronation, Pope Pius XII was singled out by Sweden's King Gustav V as the man who rendered greater service to humanity than anyone else in the world and awarded the nation's Prince Carl Medal.

Cardinal Eugene Tisserant, secretary of the Sacred Congregation for the Oriental Church, who arrived in April on an extended U. S.-Canada visit, disclosed that millions of Eastern Rite Catholics were "suffering in new catacombs." In Moscow, G. R. Brunst of N.C.W.C. News Service headquarters staff, reporting the Big Four Foreign Ministers' Conference, became the first correspondent exclusively representing a religious news service to report events within Soviet Russia.

The U. S. Hierarchy lost a distinguished member and gained six new ones during May. Archbishop Michael J. Curley, 67, first U. S. prelate to head two archdioceses—Baltimore and Washington — simultaneously, died after a long illness in Baltimore. Bishop Floyd L. Begin was consecrated Auxiliary of Cleveland, and Bishop Thomas J. McDonough, Auxiliary of St. Augustine. Meanwhile Pope Pius XII named Msgr. John J. Wright, Auxiliary Bishop of Boston; Msgr. John P. Cody, Auxiliary of St. Louis; the Rev. James J. Byrne, Auxiliary of St. Paul, and the Rev. Henry T. Klonowski, Auxiliary of Scranton. Bishop William T. McCarty, C.SS.R., was installed as Coadjutor at Rapid City.

As the month of May opened, huge ceremonies were held throughout the nation at which prayers were offered for conversion of Russia. On Mother's Day a nationwide collection was taken up for funds to complete the National Shrine of the Immaculate Conception in Washington.

August brought an exchange of letters between Pope Pius XII and President Truman. The President pledged again his desire to work for peace "built only on Christian principles."

Yugoslavia's tense situation again was spotlighted. Hardly had reports of killings of several priests, death sentences and long prison terms for seven others reached the U. S., than a group of eight Protestants, including seven clergymen, returned from a whirlwind visit to Tito-land. They reported no evidence of religious persecutions, even in the case of imprisoned Archbishop Aloysius Stepinac of Zagreb. The report, generally, was characterized by religious leaders and the secular press as a "whitewash" for Tito.

Two gigantic U. S. assemblages attracted attention of the Catholic world in September. The colorful, four-day spectacle that was the Eucharistic Congress marking the Buffalo diocese's centenary, brought together seven Cardinals, upwards of 70 Archbishops and Bishops from all parts of the world, and more than 100,000 faithful. The Tri-State Congress in Grand Rapids, arranged by the N.C.W.C. Lay Organizations Department, drew 20,000 persons at 50 discussion meetings, and was hailed by Cardinal Edward Mooney, Archbishop of Detroit, as the first in a series of such efforts to advance Catholic aims through an informed laity.

Passing of two eminent prelates shrouded the Catholic world during October. In Rome, Cardinal Carlo Salotti, prefect of the Congregation of Rites, died at 77 after a distinguished career of service to the Church. His death reduced the College of Cardinals to 62. Beloved Archbishop John J. Cantwell, pioneer for clean movies and spiritual head of Los Angeles Catholics since 1917, died in Los Angeles at 72.

As the year slipped from the calendar into history, Pope Pius named Providence's Bishop Francis P. Keough to be Archbishop of Baltimore; Msgr. Patrick A. O'Boyle, director of New York charities and former director of War Relief Services—N.C.W.C., first Archbishop of Washington; Msgr. Albert R. Zuroweste, editor of *The Messenger*, Bishop of Belleville; Msgr. Louis J. Reicher, first Bishop of the newly created Diocese of Austin, Tex., and Msgr. Wendelin J. Nold, Coadjutor with right of succession to Bishop Christopher E. Byrne of Galveston.

THE EASTERN CHURCHES

By E. R. Hardy, Jr.

Berkeley Divinity School

GREEK (HELLENIC) ORTHODOX CHURCH

The latest figures for the Greek Orthodox Church in America report 277 communities, nearly all served by resident priests. The membership of the Clergy Mutual Aid Fund comprises the archbishop, three assistant bishops, and 176 priests. The Nov. 15 number of the *Orthodox Observer*, official Greek-language magazine of the Archdiocese, contained a description and pictures of the archdiocesan institutions—the headquarters at New York and Chicago, the Holy Cross Seminary at Pomfret, Conn. and Brookline, Mass., and the Academy of St. Basil at Garrison, N. Y. The latter is an institute for training young women as religious teachers, with which a day school is connected. The Seminary celebrated its tenth anniversary in 1947; it has already contributed over 50 priests to the Church.

The Greek Church is constantly occupied in organizing the scattered Greek communities; early in the year the Archbishop's assistant, Bishop Germanos of Nyssa, carried out a visitation of the South for this purpose. Conferences of the teachers in Greek religious schools were held in the principal districts. On June 27-29 the choirs of the Greek Churches of California held a convention and organized a choral society.

Several special events of interest took place during 1947. On Jan. 11 Archbishop Athenagoras, on behalf of the Patriarch of Jerusalem, presented the Grand Cross of the Holy Sepulchre to President Truman. On April 2, memorial services for King George II of Greece were held in the Cathedral in New York and elsewhere. From April 25 to May 10, Archbishop Germanos of Thyateira was in the United States in connection with the meeting of the Provisional Committee of the World Council of Churches, of which he is one of the presidents. Since 1922 he has been Exarch of the Patriarch of Constantinople for Western Europe: previously he had been head of the Patriarchal Seminary at Halki, where he taught several of the leaders of the Greek Church who were glad to welcome him to this country. On Sept. 21 a religious and patriotic festival in connection with Holy Cross Day (Sept. 14) was held at Atlantic City with an attendance of some 21,000. The Archbishop, the Bishop of Nyssa, and Bishop Bohdan of the Ukrainian Church took part in the Liturgy and the traditional blessing of the sea with the Holy Cross, with prayers for the American Navy, protector of peace and freedom.

A lay organization, Zealots of Orthodoxy, has undertaken the publication in English of the works of Apostolos Makrakis, a Greek lay theologian who died in 1905. A vigorous defender of the Orthodox faith and an equally vigorous proponent of reform in the Church, Makrakis was officially censured in his own time but has inspired much of the new life of today in the Orthodox Church, and these publications have received ecclesiastical approval.

RUSSIAN ORTHODOX CHURCH

In accordance with the decisions of the Cleveland Sobor of 1946, the Russian Church in America has broken administrative connection with the Synod of Russian Bishops in Exile. As a result Archbishop Vitaly of Jersey City and three other Bishops withdrew from union with the American Church early in 1947, carrying with them a few parishes. On March 30, Metropolitan Theophilus consecrated Archimandrite Antony, for many years rector of the Church of SS. Peter and Paul, Montreal, as Bishop of Montreal and Eastern Canada, and on April 6 the Archimandrite John as Bishop of Brooklyn and his assistant in New York.

On July 18, Metropolitan Gregory of Leningrad arrived in New York to reopen negotiations for the resumption of normal relations between the Patriarchate of Moscow and the Russian Church in America. The American Church, however, desired complete internal autonomy under the spiritual leadership of the Patriarch. Metropolitan Theophilus was represented in the negotiations by Bishops Antony and John. Since the Patriarchate insisted on retaining some control over the administration of the Church in America the negotiations remain incomplete, and Metropolitan Gregory has returned to Russia. The former Patriarchal Exarch, Metropolitan Benjamin, has been transferred to the Diocese of Riga, and the Patriarchate is temporarily represented by Archbishop Makary of New York. Bishop Antony of Montreal, having recently died, the hierarchy under Metropolitan Theophilus consists of Archbishop Leonty of Chicago, Bishop Benjamin of Pittsburgh (temporarily in charge of the Orthodox Church in Japan), Bishop John of Alaska, Bishop John of Brooklyn, and Bishop Nikon, formerly of Paris, now at the Monastery at South Canaan, Pa. The Council of Bishops met at San Francisco in November for a four-day session in which it made arrangements for filling up its numbers and returned to the previous status of provisional autonomy. Further negotiations with Moscow are not immediately expected.

The Russian Orthodox Church now ministers to its people in some 350 communities, the larger number of parishes remaining in Metropolitan Theophilus' jurisdiction; the greatest concentration of parishes is in Pennsylvania, which has about 80. St. Vladimir's Seminary is now established in the buildings of Union Theological Seminary, New York, and operates in cooperation with Columbia University. Its staff has recently been strengthened by the arrival of several distinguished Russian scholars from abroad, including G. P. Fedotov and Nicholas Lossky.

OTHER ORTHODOX CHURCHES

Bishop Policarp of the Romanian Church has been unable to return to the United States, and the administration of the diocese is therefore still in the hands of a committee. Metropolitan Vissarion, formerly of Cernauti, is expected to arrive shortly as spiritual head of the Church in the United States.

The Serbian Church under Bishop Dionisie completed in 1947 the celebration of the 600th anniversary of the institution of the Serbian Patriarchate in 1346 under St. Joannikie. Most of the Serbian Orthodox in this country are not sympathetic with the government of Marshal Tito in Yugoslavia, although ecclesiastically under the jurisdiction of the Serbian Synod and Patriarch Gavrilo in Belgrade. Divisions based on this situation have led to the separation of the Serbian parish in Pittsburgh from the rest of the Church in America.

The Syrian Church under Metropolitan Antony is making arrangements for the publication of an official magazine in English, which language it already employs extensively in its services.

ORTHODOX CHURCHES ABROAD

During most of the year the Patriarch of Constantinople was in retirement on account of his health, but he is now returning to his duties. In March, the Synod of Constantinople formally recognized Metropolitan Vladimir as successor to the late Metropolitan Eulogie as Exarch for the Russians of its jurisdiction in western Europe. Other Russians in western Europe are under the Patriarch of Moscow, while a number of parishes, including many of those organized in the Displaced Persons' camps in Germany, recognize the authority of the Synod of Russian Bishops in Exile, now at Munich. In Russia the Church has continued to expand its theological education and rebuild parochial and monastic life; the shortage of educated clergy and of qualified candidates for the episcopate is at present the chief limitation on its revival. Invitations were issued by Patriarch Alexei for a conference at Moscow in October to discuss common problems of the Orthodox Church and its relations with other Churches, but on account of a refusal from Constantinople and some hesitation elsewhere the conference has been postponed.

In February, a Delegation from the World Council of Churches visited the Orthodox Churches of the Near East to renew contacts and reaffirm the invitation to take part in the coming Assembly of the World Council. Favorable replies have been received from all the Orthodox Churches of that area—the Patriarchates of Constantinople, Alexandria, Antioch, and Jerusalem, and the autocephalous Churches of Cyprus and Greece. Several Orthodox theologians have taken a prominent part in the work of the World Council; Archbishop Germanos is one of its presidents, Father Florovsky of Paris also attended the meeting of the Provisional Committee at Buck Hill Falls in April, and both Greek and Slavic writers are sharing in the study program of the Council. The World Council is also in touch with the Coptic and Armenian Churches. Its relief program has extended to several Orthodox Churches, cooperating especially with the Church of Greece, the Patriarchate of Romania, and the Orthodox Church in Finland.

The long vacancy in the Church of Cyprus was terminated by the election of Bishop Leontios of Paphos as Archbishop on June 20. Born in 1896, Archbishop Leontios was a graduate of the University of Athens and the General Theological Seminary, New York, a member of the Orthodox Delegation at the Lambeth Conference of the Anglican Communion in 1930, and Bishop of Paphos since June 1947. Unfortunately his premature death on July 26 renewed the vacancy in the see, of which the one surviving Bishop, Makarios of Kyrenia, is now *locum tenens*.

OTHER EASTERN CHURCHES

Mar Shimun, Patriarch of the East and of the Assyrians, continues to devote himself to the building up of the Assyrian parishes in the United States; besides a few in the East and at Chicago the main center is in California. With the cooperation of the (Episcopal) Bishop of San Joaquin, Mar Shimun organized in October a numerously signed protest of prominent Americans against the oppression of Assyrians in Iraq.

Bishop Tiran of the Armenian Church has started a drive for the building of an Armenian Cathedral and cultural center in New York, where at present he occupies temporary headquarters. A certain number of Armenians from America have joined in the movement for the return of unsettled Armenians to Soviet Armenia, which occupies the traditional center of their homeland. The Armenian parishes in California, which form a separate prelacy, are now under the jurisdiction of Bishop Kasparian.

JUDAISM AND JEWISH COMMUNAL AFFAIRS

By Harry Schneiderman
Co-Editor, American Jewish Year Book

GENERAL

The American Jewish community devoted its attention and resources during the year 1947 to problems of strengthening American communal needs, overseas relief, the requirements of Palestine reconstruction and settlement, and refugee aid.

The creation of the Jewish state Nov. 29 by the United Nations was for many American Zionists the realization of long years of hope and work. Non-Zionist Jews also welcomed the United Nations decision, but continued to urge the lowering of immigration barriers in all lands. All Jewish groups, faced with the fact that upon the United States has fallen the mantle of a Jewish cultural center, have turned to self-examination and a re-evaluation of their educational, social, and welfare needs. At the same time American Jews continued their efforts to overcome anti-Jewish agitation and prejudice.

SYNAGOGUE ACTIVITIES

The growing social awareness of religious bodies, in response to the economic and social tensions which brought on the Second World War and which remain unallayed since the war's end, is perhaps the most significant development in current religious thought and action.

The Jewish Orthodox rabbinate, organized in the Rabbinical Council of America, for the first time in the history of Orthodoxy issued an official pronouncement on American economic problems at its convention in April. The Council identified the labor-management relations problem as the most crucial facing the American community and urged management to accord the laborer full recognition as a "human being endowed with incalculable spiritual potentialities. . . ."

On the occasion of Race Relations Week in February the Central Conference of American Rabbis, the association of Reform rabbis, denounced race-hatred as "blasphemy" and urged the removal of all barriers, by legislative as well as educational and economic means, to the "achievement of one humanity under God." In April, the Central Conference sponsored an Institute on Judaism, Management, and Labor in Chicago, attended by laymen, rabbis, and leaders in industry and labor. A summary resolution passed by the Institute deplored all legislation which would deprive labor of any of the rights gained since passage of the Wagner Act.

At its 58th annual convention held in June the Central Conference considered and passed resolutions on labor, immigration, the United Nations, public education, civil rights, discrimination, and intermarriage. The convention urged free immigration into Palestine, passage of the Stratton Bill to admit displaced Europeans into the United States, enactment of a Federal Fair Employment Practices Commission and anti-lynching legislation. In regard to mixed marriages, the Central Conference reaffirmed its resolution of 1909 declaring that mixed marriages "are contrary to the tradition of the Jewish religion and should therefore be discouraged by the American Rabbinate."

OPPOSITION TO SECTARIAN PRACTICES IN PUBLIC SCHOOLS

The efforts of various church groups to introduce sectarian practices and instruction in the public school system, which have increasingly concerned Jewish religious bodies in recent years, finally prompted the adoption of a clear-cut policy. In June, the Central Conference voiced its opposition to the use of public school assemblies and convocations for evangelistic purposes. In the fall, the Synagogue Council, representing Reform, Conservative, and Orthodox congregations, and the National Community Relations Advisory Council called a conference of their member organizations to consider specifically the attitude of the Jewish community toward the so-called "released time" plan which has been adopted by a steadily increasing number of cities. As a result of the discussion, both organizations, with the approval of all their member organizations, issued a joint declaration in May in which they stated unequivocally that religious instruction is the responsibility of the synagogue, church, and home, not of the public school. These organizations, therefore, announced their opposition to released time and dismissed time practices in the public schools and to the utilization of time, facilities, personnel, or funds of the public school system for religious instruction. However, the statement pointed out, where a program of released time or dismissed time is already in effect or may be adopted, a number of safeguards against possible abuses must be insisted upon. The two organizations set up a permanent national committee to consult with local Jewish communities on problems arising from the introduction or operation of released-time.

STRENGTHENING ADHERENCE TO JUDAISM

The 1947 Conference of the Jewish Theological Seminary of America, held in November, was devoted to the preparation of a program designed to intensify Jewish adherence to Judaism and to advance understanding among all Americans of the Jewish faith. Sponsored jointly by the United Synagogue of America and the Rabbinical Assembly of America, the Conference adopted a plan for strengthening interfaith cooperation in America by meeting the increasing need for adequately trained Jewish leadership through the enlarged schools of the Seminary; enriching Jewish life by restoring the synagogue as the center of the Jewish community; advancing the Jewish education of children and adults; and fostering American understanding of Jews and Judaism through the Seminary's educational program.

The Seminary has sponsored as part of its educational program the "Eternal Light" radio broadcasts, the Institute for Religious and Social Studies, the Jewish Museum which houses a collection of Jewish art and ceremonial objects, and the Seminary Library.

The Union of American Hebrew Congregations set aside November and December 1947 and January 1948 as a period during which 50 Reform rabbis will visit 37 states in a program of religious revival. The American Jewish Cavalcade, as this program is known, hopes to carry knowledge and understanding of Judaism to all Americans who wish to labor with Jews for the spiritual and material betterment of mankind.

Efforts of religious leaders to reach out into small communities throughout the country were demonstrated by the celebration of an Agricultural Sabbath on Oct. 4, the Sabbath of Succoth, traditional Jewish Thanksgiving week. The Synagogue Council of America, in cooperation with the Jewish Agricultural Society of America, sponsored the celebration which included the preaching of sermons on farm life and its importance to Jews.

ORGANIZATION ACTIVITIES

In addition to acting on social questions, synagogue and rabbinical organizations have pursued their regular program of activities during the year.

The Rabbinical Council of America followed the example set by its Conservative and Reform counterparts and adopted a pension and health insurance plan for its members. Rabbi Uri Miller of Baltimore served as president during the year; Rabbi Morris Max was engaged as executive vice-president.

The Union of Orthodox Jewish Congregations began publication of a bi-monthly magazine, *Jewish Life,* under the editorship of Leo S. Hilsenrad. It established a national association of men's clubs and an organization of junior congregations affiliated with its member synagogues. Both groups issue monthly publications.

The Union of Sephardic Congregations, under the leadership of Dr. David de Sola Pool, continued to lend guidance to Sephardic communities throughout the world and to provide prayer books and other ritual and educational materials for their use.

The Rabbinical Assembly, in conjunction with the United Synagogue of America, is preparing two volumes of prayer books for daily and home use and for the High Holy Days.

A conference on Jewish music in the synagogue, held in February, resulted in the establishment of the Cantors Assembly. Both the United Synagogue and the Union of American Hebrew Congregations set up architectural bureaus and consulting staff to guide congregations planning new buildings.

Rabbi Maurice N. Eisendrath was elected to the presidency of the Union of American Hebrew Congregations to succeed the late Adolph S. Rosenberg. The Union sponsored 67 Institutes on Judaism for the Christian clergy during the year and the National Federation of Temple Sisterhoods inaugurated a similar series of institutes for leaders of church women's groups. The Sisterhoods also embarked on a campaign to erect a headquarters building for the Union and its affiliates.

Under the auspices of the National Federation of Temple Brotherhoods, the Jewish Chautauqua Society sponsored lectures on various aspects of Judaism at 366 colleges and distributed close to 7,000 books among college libraries. The Union also announced the establishment of the Frieder award which will provide prizes of $1,500 annually for the best productions dealing with Jewish life in drama, poetry, and fiction. The National Federation of Temple Youth, which had been weakened during the war years, engaged in energetic organization efforts under the new director, Rabbi Samuel Cook.

At the death of Rabbi Isaac Landman, Rabbi William Rosenblum was elected head of the Synagogue Council of America.

EDUCATIONAL ACTIVITIES

Jewish educational endeavor during the year was characterized principally by an awareness of the need for intensifying Jewish education on the elementary level. This was reflected in the education conferences of the Rabbinical Assembly in December and the Mizrachi National Education Committee in April.

Changes in elementary Jewish education have already appeared in the schools of many cities. These changes include improved curricula, additional kindergarten or pre-school departments, supplementary week-day instruction added to existing Sunday School programs, increased sessions in week-day schools, and summer day camps.

Jewish educational objectives were the subject of a joint conference in June of the National Council for Jewish Education and the American Association for Jewish Education which set up a commission to make an intensive survey of the Jewish teaching field as a prelude to raising the standards for instruction in Jewish religious schools.

Three scholarly volumes published during the year dealt with the aims of Jewish education; two were in Hebrew, one in English—*Hebrew Education in America—Problems and Solutions* by Dr. Uriah Z. Engelman.

Also concerned with the objectives of Jewish education is the Research Institute in American Jewish Education, a non-partisan agency for psychological studies and educational projects in Jewish adjustment to America. The organization of this Institute was made possible in February 1947 by a grant from the American Jewish Committee. The Institute operates in two divisions: psychological research and educational experimentation.

The National Jewish Welfare Board, parent organization of community centers throughout the country, joined with the American Association for Jewish Education in support of a program of coordination between Jewish educational agencies and Jewish centers. A statement of principles released Sept. 3 urged the incorporation of educational aspects into the center's group work and group activities into the school's educational program.

In October, a College of Jewish Studies was opened in Los Angeles under the auspices of the Southern California Council of the Union of American Hebrew Congregations. The curriculum includes courses in Jewish history, religion, literature, and the Hebrew language.

CULTURAL ACTIVITIES

Aware of the responsibility American Jewry must assume now that the centers of Jewish culture in Europe no longer exist, Jewish community groups are examining the cultural resources of Jews in the United States.

A survey, covering all aspects of Jewish center work and considering the present and future activities of the National Jewish Welfare Board, was conducted during 1947 by 35 scholars under the sponsorship of the Jewish Welfare Board. On May 10, a report on the survey, incorporating 21 recommendations, was presented to the annual meeting of the JWB by Dr. Salo Baron and Dr. Oscar Janowsky, who were in charge of the entire study. One of the central points of the report was the recommendation for establishment of "an all-embracing Jewish-culture society," which would include within its sphere of interest Jewish history, literature, fine arts, crafts, dramatics and the theatre. The report recommended that membership in the Jewish center should be open to all inhabitants of the local community, "without distinction as to race, color or creed"; but it also urged the center program to place primary emphasis upon Jewish content.

Many activities in Jewish communities are already sponsored by the JWB, which furnishes centers with material on Jewish arts, music, and religious and traditional observances. In November, the JWB sponsored its 19th annual Jewish Book Month to sustain interest in Jewish literary creativity. Exhibits were arranged in public libraries, Jewish centers, YMHA's, and synagogues showing books in English, Hebrew, and Yiddish.

The Jewish Music Council, set up under the auspices of the JWB, conducted a Music Festival during February 1947 which included radio programs of Jewish music and a concert at Carnegie Hall in New York City.

Essential to the development of a wider interest in Jewish books are the publishing houses which are devoted to the making of books of Jewish interest. Among these are the Jewish Publication Society of America, the Bloch Publishing Company, the Behrman House, and Schocken Books, a well-known German, Jewish, and Hebrew publishing house whose American branch was established in 1946.

Histadruth Ivrith, the central Hebrew culture organization, publishes a Hebrew weekly, *Hadoar,* and maintains a special publication department which during 1947 published, in Hebrew, books of poetry and fiction as well as sociological and historical studies. Pargod, the dramatic group of the Hebrew Arts Committee which is sponsored by the Histadruth Ivrith and the Zionist Youth Commission, added to its repertoire Peter Frey's *Shylock 1947,* a modern adaptation of the *Merchant of Venice.* A new cooperative Hebrew publishing house, *Ohel,* has enriched Hebrew literature in America with one novel and two books of essays.

The Central Yiddish Culture Organization (CYCO), a federation of several Yiddish groups, publishes *Di Zukunft,* the oldest and most important Yiddish literary-social-scientific monthly in the world. The CYCO published new editions of several Yiddish classics, an anthology of Yiddish literature in Poland and books of poetry and social comment.

The Yiddisher Kultur Farband (YIKUF), left wing cultural group, issued 18 books from May 1946 to April 1947. These included history, fiction, and biographical and cultural essays.

Soon after the outbreak of the Second World War, the Yiddish Scientific Institute (YIVO) was transferred from Vilno to New York, broadening the scope of its research in the field of Jewish sociology. The year's annual conference was dedicated to Jewish reconstruction; 17 papers on this theme were delivered at the sessions. The exhibit, "Jews in Europe, 1939," consisting of some 4,000 items dealing with Jewish martyrdom during the Nazi occupation, was opened during the conference. YIVO also published six new books in Yiddish during the year.

The first Jewish Museum of its kind in the United States was opened in May under the auspices of the Jewish Theological Seminary of America. Housed in the former home of Mrs. Felix M. Warburg in New York City, the Museum opened with three large exhibits which included art and ceremonial objects of the past, and paintings and sculptures of modern Jewish artists on Jewish themes.

INTER-GROUP RELATIONS

During 1947, there was a marked decrease in organized anti-Semitic activity; on the other hand, latent anti-Semitic sentiment persisted, as indicated in public opinion polls and evidenced by discrimination against Jews in employment, education, housing, and resorts.

Two subversive organizations which achieved notoriety during the year were the Columbians and the Ku Klux Klan. The former group, which boasted of its anti-Negroism and anti-Semitism, used methods that were clearly Nazi-inspired. The leaders of the group were sentenced to jail after several incidents of anti-Negro violence. The Ku Klux Klan's activities were exposed, and subsequently membership applications declined. Also, California, New York, New Jersey, Indiana, Wisconsin, and Kentucky cancelled the corporate charter of the organization, thus barring open organizational activities in those states.

Jewish groups interested in community relations have continued to probe, inquire, and conduct research into the causes of anti-Semitism and the means of combating it. The American Jewish Committee and the American Jewish Congress maintained research programs which considered three aspects of the problem: roots of prejudice in the individual; group inter-action; and communications research. Most of these studies were carried out with the cooperation of psychologists, psychiatrists, and sociologists at academic institutions or in private practice. *Action for Unity*, by Prof. Goodwin Watson, published in 1947, reported his own survey and evaluation of methods now employed in promoting better community relations. A study by Prof. Gordon Allport, made public in January 1947 reported findings to the effect that about four-fifths of the school groups studied are prejudiced to some extent against members of racial, religious, or national groups different from their own. A major series of studies in progress at the University of California is on the personality structure of the anti-Semite.

DISCRIMINATION IN EMPLOYMENT

Early in 1947, the President's Committee on Fair Employment Practices issued its Final Report. This cited a survey, completed in the summer of 1946, showing that employment discrimination against Jews had increased markedly in the months following the war. Jewish agencies in the field of community relations, working through the National Community Relations Advisory Council, agreed on recommendations for the guidance of programs to combat discrimination in employment; recommendations which were embodied in a report, "The

Work of Jewish Agencies in the Field of Employment Discrimination."

During the period under review, Massachusetts and Connecticut joined the rank of states with FEPC laws on their books. Added to New York, New Jersey, Wisconsin, and Indiana, which had previously passed laws in this field, this made six states with FEPC legislation. Similar bills are pending in at least 18 other states.

While no Federal law has yet been passed, the Ives-Chavez bill, patterned after the New York State law, was considered by a Senate sub-committee during June. Jewish agencies testifying in favor of such legislation were the American Jewish Committee, American Jewish Congress, B'nai B'rith, and National Council of Jewish Women, all of which pointed out that bigotry is not merely a state problem but one which calls for Federal treatment.

DISCRIMINATION IN EDUCATION

Higher education in the United States was given a thorough review by the President's Commission on Higher Education, which made a year and a half survey of the question and submitted a report of its findings Dec. 15.

The report stressed the need for reorientation and expansion of higher education in the United States, together with immediate discontinuance of racial segregation and racial and religious quotas. According to the Commission's findings, many colleges and universities, especially in their professional schools, "maintain a selective quota system for admission, under which the chance to learn, and thereby to become more useful citizens, is denied to certain minorities, particularly to Negroes and Jews." Jewish groups hailed the report as a courageous and forthright appraisal of some of the weaknesses in American higher education.

Discrimination in educational institutions was also the subject of study and action among Jewish groups. A decennial census of Jewish students at American colleges and universities is under way, the first part of which was completed in September, and made public by the B'nai B'rith Vocational Service Commission. The study revealed that the proportion of Jewish students enrolled in professional courses dropped from 8.8 per cent in 1935 to 7 per cent in 1946. The fact that Jews go to college today in the same proportion as 11 years ago may be regarded at least partly as evidence of discrimination against Jews in professional schools and departments. Another survey revealed that the application blanks of 79 per cent of 171 leading non-sectarian colleges ask questions referring to the applicant's race, religion, or national ancestry.

Among the efforts to fight discrimination was a suit launched by the American Jewish Congress to void Columbia University's tax exemption because of alleged discriminatory practices in admission. The suit was rejected on a technicality in the courts of New York State.

An effort to obtain passage of the Austin-Mahoney Bill, which would have forbidden schools to discriminate in admitting students, failed mainly because of Catholic opposition. The bill was not reported out of committee of the New York State legislature.

Reflecting their concern over the problem was the strong support of the Jewish groups in New York State for a state university. In October, representatives of Jewish groups testified before Governor Dewey's special Commission on a State University and urged upon it a complete state institution of higher learning which would be accessible economically and geographically, and without racial or religious barriers.

DISCRIMINATION IN HOUSING

Realty discrimination was also a cause for grave concern. For the first time, Jewish organizations attempted to test legally the validity of restrictive real estate covenants. In February, a bill outlawing restrictive real estate covenants, supported by the American Jewish Congress, was introduced in the New York State Assembly, and a proposal to outlaw discrimination in mortgage financing because of race, religion, national origin, or ancestry was also submitted.

The legality of restrictive covenants is now under consideration by the Supreme Court of the United States. Four cases before the Court concern the validity of sales to Negroes or the uses of property by Negroes in violation of terms of covenants affecting the property. It is believed that upon the decision of the Court rests the question of the legality within the United States of restrictive covenants, regardless of the minority discriminated against. Four national Jewish organizations have filed amicus curiae briefs with the Supreme Court.

CIVIL RIGHTS COMMITTEE

When President Truman issued an executive order establishing a Committee on Civil Rights in December 1946, Americans throughout the country rejoiced in the hope that a national examination of the state of civil liberties would bring about a rededication of historic democratic American principles.

Jewish groups, together with labor, veterans, and other groups, urged upon the Committee to consider measures which would outlaw lynching, the poll tax, discrimination in education and employment. They advocated expansion of the Civil Rights Division of the Justice Department. While several of the agencies differed in opinion as to the type of legislation best suited to eradicate group tensions, all were agreed on the need for enlarged and improved machinery in the Federal Government to defend civil rights.

All Jewish groups hailed the recommendations of the President's Committee on Civil Rights made public in October. Judge Joseph Proskauer, president of the American Jewish Committee, declared that the report was "a major contribution to the strengthening of American unity and the preservation of democratic rights."

COMMUNAL WELFARE

Local Jewish welfare funds organized throughout the United States reached an all-time high in their capacity to secure philanthropic funds from all sections of the Jewish community. With the urgency of foreign needs, a large part of these funds was earmarked for help to overseas Jewry and to the agencies concerned with the development of Palestine.

With the liquidation of UNRRA on June 30, the American Jewish community assumed a heavy responsibility to raise the needed funds for adequate overseas work. The United Jewish Appeal raised approximately $125,000,000 for refugees, overseas needs, and Palestine.

Methods of communal work have been adapted to current needs and conditions, with mergers of local central agencies, extension of scope, membership, and representation. For example, the Detroit Federation changed its by-laws enlarging its Board to include representatives of communal agencies, trade, professional, youth and women's divisions of the campaign, councils of organizations, and individuals at large.

A characteristic of reorganized communal work is a broadening of scope to go beyond the traditional philanthropies and to include all matters of common concern to the local Jewish population. Local communities, organized in the Council of Jewish Federations and Welfare Funds, dealt with plans in Jewish education, community organizations, fund-raising, and Jewish community relations.

At its 15th annual General Assembly held in February 1947, the Council passed resolutions urging Great Britain to admit the fullest number of displaced Jews to Palestine and the United States to open its doors to a maximum number of refugees. It further urged that the American Jewish community so conserve and use its forces in coordinated planning and fund-raising that maximum results could be achieved.

In June, the CJFWF organized an

Institute on Overseas Studies to provide American Jewish communities and voluntary agencies with data essential for their guidance in determining long-range financial and functional responsibilities.

The increasing importance of Jewish communal work made apparent the need for an increase in the number of trained professional workers. With this need in mind, representatives of the American Jewish Joint Distribution Committee, the American Association for Jewish Education, The Council of Jewish Federations and Welfare Funds, National Community Relations Advisory Committee, National Jewish Welfare Board, National Conference of Jewish Social Welfare and Synagogue Council of America set up a special graduate training program for experienced personnel with previous training in social work and related fields. The bureau, known as the Training Bureau for Jewish Communal Service, began to function in July, with a carefully selected body of mature and experienced students who are being prepared for administrative and executive positions.

Delegates to the American Jewish Conference, which was organized in 1943 as a temporary unit to consolidate American Jewish activities in relation to political questions arising out of the war, voted Nov. 30 to establish a permanent agency to act as spokesman for Jews in America on domestic and foreign problems. The new organization will act through recognized Jewish agencies, affiliated with the organization, without affecting their autonomy. Since several major Jewish groups have not consented to affiliate with the new organization, its decisions will reflect the opinions of only one segment of the American Jewish community.

OVERSEAS AID AND RECONSTRUCTION

Relief measures during 1947 shifted their emphasis from temporary measures to sustain life to more permanent measures of constructive aid to rehabilitate and restore surviving Jews to economic independence.

The field of overseas relief outside of Palestine has been served by a number of organizations. The major Jewish relief agency is the American Jewish Joint Distribution Committee. During the period under review the JDC operated in virtually every field of rehabilitation and reconstruction. The scope of its operation may be gauged from the fact that during the first ten months of 1947 the JDC allocated $64,465,000 for its overseas work, operating in many lands and engaging in such activities as cash assistance, aid in kind, child care, medical aid, assistance to religious and cultural institutions, vocational training, promotion of credit and producers' cooperatives, organization of work projects, and facilitating of resettlement and emigration.

It is estimated that, in the spring of 1947, the JDC assisted in one form or another about 740,000 persons in Europe, or one half of the total surviving Jewish population in continental Europe outside the Soviet Union, including about 122,000 children out of a total of 179,000 Jewish children in that area.

The SOS (Supplies for Overseas Survivors), a JDC-fostered organization, shipped overseas over 5,400,000 pounds of donated supplies of food and clothing during the first ten months of 1947.

Other specialized agencies continued overseas aid within their special areas. The World Ort Union, with a long history in the field of vocational training, operated training facilities in Poland, Rumania, Hungary, Germany, Austria, Italy, and other countries. In February 1947, this organization unified its vocational training program with that of the JDC, Ort being charged with the administration and operation of over 650 training programs in Europe.

OSE (Organization au Secours des Enfants), an organization specializing in child and health care, has in operation over 425 institutions in Europe, including children's homes, medical and welfare centers, sanatoria and dispensaries.

In July an agreement was reached between the Union of Orthodox Rabbis of the United States and Canada and the JDC which will integrate programs devoted to the rehabilitation and advancement of Orthodox Jewish life in Europe. Such programs will be under the supervision of the Jewish Central Orthodox Committee, which will serve as the sole representative group for the consideration of the problems of Orthodox religious reconstruction.

Leading Jewish organizations in the United States formed a body known as Jewish Cultural Reconstruction, Inc., whose purpose is to locate and reclaim the many cultural treasures now scattered over the wide area of the former Nazi empire. Organizations such as the World Jewish Congress, Jewish Labor Committee, and Vaad Hatzalah have also contributed to the revitalization of culture among religious, labor, and other groups.

American organizations interested in the civil rights of Jews have opened European offices to assist the Jews of Europe regain full status as citizens of their countries of residence. The American Jewish Committee, American Jewish Conference, and World Jewish Congress have pleaded for fair restitution laws to enable Jews to regain property which belongs to them, or equitable reparations. These organizations have asked that just restitution laws be included in the peace treaties with Austria and Germany. They have also asked for civil rights provisions to be included in the treaties.

IMMIGRATION AND IMMIGRANT AID

About 25,000 Jewish survivors of Nazism arrived in the United States during 1947, including those who were admitted under President Truman's directive of 1945. Many of these immigrants, who have no relatives in this country to furnish affidavits, are brought in under corporate affidavits supplied by the Jewish organizations who have been so authorized: United Service for New Americans, Hebrew Sheltering and Immigrant Aid Society, and Vaad Hatzalah Emergency Committee, interested particularly in Orthodox rabbis and scholars and their families.

The United Service for New Americans expanded during the year, and it is now the second largest welfare agency operating in the United States, second only to the American Red Cross. This growth was necessary in order to meet demands of newcomers who have been finding a haven in the United States under the immigration laws and in accordance with the President's directive.

HIAS, the Hebrew Sheltering and Immigrant Aid Society of America, which has been engaged in immigrant aid for 40 years, maintains offices in about 50 countries. In March, at its annual convention, the organization adopted a budget of $4,010,000 for 1947. It urged the United Nations to apportion quotas to its member nations for absorption of Europe's displaced persons and refugees on an equitable, non-sectarian basis. With the corporate affidavit, Hias was able to rescue during the year 2,000 Jews stranded in Shanghai.

Many persons looked toward Congress for emergency action which would admit a fair share of displaced persons to the United States, but during 1947 no such action was taken. Rep. W. G. Stratton (R., Ill.) introduced in the House of Representatives, on April 1, a bill calling for the admission into the United States of a maximum of 400,000 displaced persons, over a period of four years, from UNRRA camps in Germany, Austria, and Italy. This emergency humanitarian measure was supported by Jewish, Catholic, and Protestant organizations, but did not come to a vote.

COOPERATION WITH THE UNITED NATIONS

In their efforts to aid the displaced Jews of Europe, American Jews have worked closely with UN representatives. In March 1947, the UN Economic and Social Council granted consultative status to the World Jewish Congress, of which the American Jewish Congress is a section, and to the Consultative Council of Jewish Organizations, of which the American representative is the American Jewish Committee. The Consultative Council in July advocated that the Economic and Social Council adopt a convention on genocide, making this act a crime under international law. The convention, which was presented in September to the UN General Assembly, proposed the punishment of rulers and public officials who "fail to employ every lawful means to prevent and punish genocide."

ZIONIST AND PRO-PALESTINE ACTIVITIES

The year in Palestine was politically a stormy one, resulting in strong repercussions in the United States. Unauthorized immigration of European displaced persons into Palestine brought forth retaliatory measures by the British Government, which then became the object of terrorist acts on the part of Jewish extremist groups. American Zionists and non-Zionists joined with the responsible Jewish community in Palestine in sharp denunciation of the terrorists, but at the same time, Zionists condemned the British policy of denying European displaced Jews, whose need for a home was so desperate, entry into Palestine. When Great Britain seized the ship *Exodus 1947* in July and sent the 4,500 immigrants aboard the vessel back to their port of embarkation in France, the Zionist Emergency Council, representing the major Zionist groups in the United States, called a protest demonstration in New York City. At the same time, the American Jewish Conference requested of President Truman and Secretary of State Marshall that an official United States protest be submitted to Great Britain.

The first ray of cheer on the Palestine scene occurred May 5, when the United Nations General Assembly voted to grant a hearing to the Jewish Agency during the special session on Palestine. The presentation of the Jewish case was made May 8 before the Political Committee of the United Nations General Assembly by Dr. Abba Hillel Silver, chairman of the Agency's American Section. Dr. Silver stressed the international obligation to insure continuous development of the Jewish national home in Palestine.

When the United Nations set up its Committee of Inquiry on Palestine, the American Jewish Committee, an organization not committed to Zionism but interested in the development of a Jewish homeland in Palestine, submitted June 1 a petition to the Committee recommending a United Nations trusteeship for the Holy Land. The petition stated its belief that a trusteeship was the best way to guarantee Jewish rights in Palestine until such time as independence could be granted. The petition recognized, on the other hand, that if the United Nations wished to evolve a final settlement in a short time, the only solution was partition.

In September, the majority report of the Committee of Inquiry on Palestine recommended partition of Palestine into an Arab and a Jewish state. Zionist leaders urged the United States to support the majority recommendation, promising cooperation in its implementation.

In this appeal the Zionist were successful, for not only did the United States support partition but two-thirds of the United Nations voted Nov. 29 to set up the two states in Palestine, an act which Dr. Silver described thus: "It marks a turning point in Jewish history. It is an impressive reaffirmation of the just claim of the Jewish people to rebuild its national life in its ancestral home."

Despite the pressure of political activity, Zionists continued to concern themselves with the spiritual and physical construction of Palestine. The Zionist Organization of America, the Labor Zionist Organization, the Mizrachi organization, and numerous other pro-Palestine groups contributed to the erection and maintenance of schools, industries, agriculture, and refugee and child care in Palestine. Hadassah, women's Zionist organization which supports a complete health program including a medical center, embarked on a five-year plan that will be the joint responsibility of Hadassah and the Hebrew University. This includes the erection of the Hebrew University-Hadassah Medical School, the first undergraduate medical institution in Palestine.

PERIODICAL PUBLICATIONS

Advance (Congregational)
14 Beacon Street, Boston.
America (Jesuit)
329 W. 108th St., New York City.
American Hebrew
48 West 48th Street, New York City.
Catholic World
401 West 59th Street, New York City.
Christendom
297 Fourth Ave., New York City.
Christian Advocate
740 North Rush St., Chicago.
Christian Century
289 Fourth Ave., New York City.
Christian Herald
419 Fourth Ave., New York City.
Christian Leader (Universalist)
16 Beacon Street, Boston.
Churchman, The (P.E.)
425 Fourth Ave., New York City.
Church Management
1900 Euclid Ave., Cleveland, O.
Commonweal, The (R.C.)
386 Fourth Ave., New York City.
Contemporary Jewish Record
386 Fourth Ave., New York City.
International Journal of Religious Education
203 N. Wabash Ave., Chicago.
Living Church (P.E.)
744 North Fourth Street, Milwaukee, Wis.
Presbyterian Tribune
Cadman Memorial Center, Fulton & Clark Streets, Brooklyn.
Reconstructionist, The
15 West 86th Street, New York City.
Religious Digest
234 Pearl St., N.W., Grand Rapids, Mich.
Southern Churchman
101 N. Jefferson St., Richmond, Va.
Watchman-Examiner, The (Baptist)
23 East 26th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

NATIONAL CHURCHES

AMERICAN BAPTIST HISTORICAL SOCIETY, Chester, Pa.

AMERICAN UNITARIAN ASSN., 25 Beacon St., Boston, Mass.

BOARD OF DIRECTION OF THE GENERAL SYNOD OF THE REFORMED CHURCH IN AMERICA, 156 Fifth Ave., New York City.

CHRISTIAN SCIENCE CHURCH READING ROOM, 537 Fifth Ave., New York City.

CONGREGATIONAL CHRISTIAN GENERAL COUNCIL, 287 Fourth Ave., New York City.

EVANGELICAL UNITED BRETHREN, 1444 United Brethren Building, Dayton, Ohio.

FREETHINKERS' OF AMERICA, INC., 370 W. 35th St., New York City.

FRIENDS' GENERAL CONFERENCE OF THE RELIGIOUS SOCIETY OF FRIENDS, 1515 Cherry St., Philadelphia, Pa.

GENERAL CONFERENCE OF SEVENTH-

Day Adventists, 6840 Eastern Ave., N.W., Takoma Park, Washington, D. C.

General Council of the Presbyterian Church in the U. S. A., 156 Fifth Ave., New York City.

Greek Orthodox Church, 124 Wadsworth Ave., New York City.

National Lutheran Council in America, 231 Madison Ave., New York City.

National Spiritualist Assn., 600 Penn. Ave., S.E., Washington, D. C.

Northern Baptist Convention, 152 Madison Ave., New York City.

Protestant Episcopal National Council, 281 Fourth Ave., New York City.

Society for Ethical Culture of New York, 2 W. 64th St., New York City.

Theosophical Society in America, Covina, Calif.

Union of American Hebrew Congregations, 32 W. 6th St., Cincinnati, Ohio.

Union of Orthodox Jewish Congregations of America, 305 Broadway, New York City.

United Lutheran Church in America, 231 Madison Ave., New York City.

United Synagogue of America, Broadway and 122nd St., New York City.

Universalist General Convention, Inc., 16 Beacon St., Boston, Mass.

Vedanta Society, 34 W. 71st St., New York City.

Volunteers of America, 34 W. 28th St., New York City.

INTERNATIONAL ORGANIZATIONS

Association for the Promotion of Christian Unity, Mission Bldg., Indianapolis, Ind.

Baptist World Alliance, Bates College, Lewiston, Me.

Central Bureau of Evangelical Churches in Europe, 297 Fourth Ave., New York City.

Church Peace Union, 170 East 64 St., New York City.

Committee on Friendly Relations Among Foreign Students, 347 Madison Ave., New York City.

Ecumenical Methodist Conference, 720 Omaha Bank Bldg., Omaha, Neb.

International Association for the Promotion of Liberal Christianity and Religious Freedom, 25 Beacon St., Boston, Mass.

International Congregational Council, 287 Fourth Ave., New York City.

International Council of Religious Education, 203 N. Wabash Ave., Chicago, Ill.

Lutheran World Convention, 231 Madison Ave., New York City.

Near East College Association, Inc., 50 West 50th St., New York City.

Religious Educational Association, 59 E. Van Buren St., Chicago, Ill.

Universal Christian Council on Life and Work, 297 Fourth Ave., New York City.

Western Section of Alliance of Reformed Churches Throughout the World Holding the Presbyterian System, 226 W. Mowry St., Chester, Pa.

World Alliance for International Friendship Through the Churches, 170 East 64 St., New York City.

World Conference for International Peace Through Religion, 70 Fifth Ave., New York City.

World Student Christian Federation, 347 Madison Ave., New York City.

World's Christian Endeavor Union, 1203 East Broad Street, Columbus, Ohio.

World's Sunday School Assn., 156 Fifth Ave., New York City.

INTERCHURCH ORGANIZATIONS

American Bible Society, 450 Park Ave., New York City.

American Sunday School Union, 1816 Chestnut St., Philadelphia, Pa.

American Tract Society, 21 W. 46th St., New York City.

Chaplain's Aid Assn., 10 E. 52nd St., New York City.

Church Peace Union, 70 Fifth Ave., New York City.

Community Church Workers of

U. S. A., 77 W. Washington St., Chicago, Ill.

CONFERENCE OF THEOLOGICAL SEMINARIES AND COLLEGES IN THE U. S. A. AND CANADA, Gettysburg, Pa.

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NATIONAL RELIGION AND LABOR FOUNDATION, 106 Carmel St., New Haven, Conn.

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CATHOLIC GUARDIAN SOCIETY, 1 Park Ave., New York City.

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COMMUNITY CHURCH WORKERS OF THE U. S. A., THE, 1302 Chicago Temple, 77 W. Washington St., Chicago, Ill.

LAYMEN'S MOVEMENT FOR A CHRISTIAN WORLD, 347 Madison Ave., New York City.

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YOUNG MEN'S CHRISTIAN ASSN., 420 Lexington Ave., New York City.

YOUNG MEN'S HEBREW ASSN., Lexington Ave., and 92nd Street, New York City.

YOUNG WOMEN'S CHRISTIAN ASSN., 600 Lexington Ave., New York City.

YOUNG WOMEN'S HEBREW ASSN., Lexington Ave., and 92nd Street, New York City.

RELIGIOUS PUBLICATIONS

AMERICAN BAPTIST HISTORICAL SOCIETY, Upland Ave., Chester, Pa.

AMERICAN BAPTIST PUBLICATION SOCIETY, 1701 Chestnut St., Philadelphia, Pa.

AMERICAN BIBLE SOCIETY, 450 Park Ave., New York City.

AMERICAN TRACT SOCIETY, 21 W. 46th St., New York City.

CHICAGO TRACT SOCIETY, 343 S. Dearborn St., Chicago, Ill.

GIDEONS, 202 S. State St., Chicago, Ill.

NATIONAL TESTAMENT AND TRACT LEAGUE, 200 Kellog Bldg., Washington, D. C.

POCKET TESTAMENT LEAGUE, THE, 156 Fifth Ave., New York City.

RELIGIOUS EDUCATIONAL ASSN., 59 E. Van Buren St., Chicago, Ill.

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Woman's Union Missionary Society, 45 Astor Place, New York City.

PART SIX

SCIENCE—APPLICATION AND PRINCIPLES

DIVISION XVIII

MATHEMATICS AND ASTRONOMY

MATHEMATICS

By G. T. Whyburn
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GENERAL

Both teaching and research activity in mathematics continued at a greatly accelerated pace during 1947. This resulted in a considerably larger volume of publication as shown by increased sizes of the research journals. In the face of rising printing costs the strain on funds normally available for this purpose has become acute. Subscription rates have had to be increased and the American Mathematical Society has had to increase its dues in order to meet the situation temporarily. The publication of research treatises in mathematics has been somewhat retarded by the same set of circumstances. This is true in particular of the Colloquium Publications of the American Mathematical Society.

The First Symposium in Applied Mathematics of the American Mathematical Society was held at Brown University in August 1947, marking the beginning of a contemplated series of such symposia to be held annually in an effort to foster research in Applied Mathematics. The subject of the 1947 Conference was "Non-linear problems in mechanics of continua." It was co-sponsored by the American Institute of Physics, the American Society of Mechanical Engineers, and the Institute of Aeronautical Sciences. Principal addresses were given by F. D. Murnaghan, J. J. Stoker, K. O. Friedrichs, and Alexander Weinstein, and in addition shorter papers and addresses were included. The Proceedings of the Symposium are to be published in book form by the American Mathematical Society.

In what follows, some of the significant developments in mathematical research will be referred to or briefly sketched.

ANALYSIS

The subject of the area of a surface received considerable development in 1947. This subject has occupied the interest of mathematicians over a long period of time, largely because of its great difficulty and elusiveness as exhibited in the celebrated example of Schwarz showing that the elementary area of a cylinder is not necessarily approximated by a sequence of inscribed polyhedral surfaces. In this connection, a study of "intrinsic" area was published by H. Buseman in 1947, who succeeded in freeing the concept of area from both its Euclidean and its infinitesimal character. He formulated five requirements which an acceptable area definition must meet. His study in particular was inaugurated by recent further paradoxical examples by Nöbeling and Besicovitch.

In a paper published in the *Transactions of the American Mathematical Society,* R. G. Helsel showed that the Lebesque area of two surfaces T and T* of the 2-cell (or disc) type are equal in case they are equivalent in the sense of Kerekjarto, *i.e.,* if they have simultaneous monotone-light factorizations $T = LM$, $T^* = LM^*$, where M and M* are continuous monotone mappings of the given discs onto the same middle space, S and L is a continuous and light mapping from S into 3-space. J. W. T. Youngs had previously shown this for the case of surfaces of the type of the 2-sphere; but his method does not extend to the case of the disc-type surfaces. Also in 1947, H. Federer extended to n-dimensions the concepts and characterizations of sets of finite linear measure in terms of local geometric properties of sets which had previously been carried out successfully for plane sets by Besicovitch, A. P. Morse, J. F. Randolph, and others. This was done in terms of a so called (ϕ,k)-rectifiability.

In an interesting study of the isoperimetric inequality and the Lebesque definition of surface area, Rado extended the classical plane and spacial isoperimetric inequalities:

$$a(C) \leqq l(C)^2/4\pi, \quad v(S)^2 \leqq A(S)^3/36\pi$$

where C is a (convex) closed plane curve and S a (convex) closed surface in 3-space, l(C) is the length of C and a(C) the area enclosed by C, A(S) is the area of S and v(S) the volume enclosed by S.

The concept of essential multiplicity of a mapping, as defined and used previously by Rado and others, received further development during 1947. In particular it was shown by P. Reichelderfer that essential multiplicity and e-multiplicity are equal for bounded transformations T on bounded plane domains or, equivalently, that the essential multiplicity of T at any image point z is equal to the number of "essential" components of $T^{-1}(z)$, where "essential component" is defined in terms of the index of T on the boundaries of approximating Jordan regions. Also, in a general article published in the *Bulletin of the American Mathematical Society,* Reichelderfer gave a discussion of the essential part of a surface, including the area problem, essential multiplicities of mappings, and other related topics.

A comprehensive study of the minimum modulus of a bounded analytical function was published by M. H. Heins during the year in the *Duke Mathematical Journal.* It was shown in particular that if f(z) is analytic and of modulus <1 for $|z|<1$, m(p) is the minimum of $|f(z)|$ on the circle with center O and radius p and m*(r) is the least upper bound of m(p) for $r \leqq p<1$, then $(1-r) \log m^*(r)$ always tends to a limit as r tends to 1.

In the field of abstract analysis, J. A. Clarkson succeeded in obtaining conditions on a real Banach space in order that it be equal to the space C(X) of all real valued continuous functions on a compact Hausdorff space X. He mentioned that an independent solution to this problem has been obtained by Kelley and Arens. A closely related result obtained by Kaplansky in 1947 asserts that the space C(X) considered as a lattice alone characterizes the space X, in the sense that if C(X) and C(Y) are equivalent as lattices, then X and Y are homeomorphic.

It was also shown by Clarkson, in connection with the well-known Darboux property of a real differentiable function f(x) on an interval (a,b), that for any two real numbers α, β, the set of all points x on (a,b) where the derivative of f(x) lies between α and β is always either empty or of positive measure.

ALGEBRAIC GEOMETRY

The 1947 summer meeting of the American Mathematical Society, held at Yale University in September, was highlighted by the well-organized and comprehensive Colloquium Lectures on abstract algebraic geometry by Oscar Zariski. Many interesting new developments were brought out, exhibiting the unusual effectiveness of a combination of topological, algebraic, and analytical methods in the field of algebraic geometry.

Also in a paper published in the *Transactions of the American Mathematical Society,* Zariski gave a systematic treatment of the general concept of a simple point in algebraic geometry. Strong supporting evidence was given for the thesis that the more general concept represented by the definition of a simple point of an r-dimensional irreducible algebraic variety v as a point p of v such that the ideal of non-units in the quotient ring of p has a basis of r elements offers the natural generalization of the classical concept of a simple point.

METRIC AND DIFFERENTIAL GEOMETRY

As defined by Menger, a straight line space is a finitely compact metric space in which any two distinct points are contained in exactly one set congruent to a Euclidean line. Menger had noted that segment addition could be defined in such a space so as to satisfy all conditions for an abelian group except the associative law. Norman Davids showed in 1947 that the associative law also could be satisfied by segment addition if, and only if, the geometry of the straight line space is Minkowskian, thus verifying an earlier conjecture of Buseman.

A study of invariant measures was published by P. R. Halmos in the *Annals of Mathematics*. Among other results, Halmos proved that every (1-1) measurable non singular transformation T of the interval into itself admits factorization into the form T = PS, where P is measure preserving and S is simple in the sense that its incompressible part is the identity.

ALGEBRA

The 1947 volume of the *Annals of Mathematics* was dedicated to J. H. M. Wedderburn, Professor Emeritus of Mathematics at Princeton University and editor of the *Annals* from 1911 to 1932. The January issue contains a dedication page and a splendid photograph which will be cherished by Wedderburn's many friends and admirers. Appropriately, this issue contains several articles closely related to Wedderburn's outstanding contributions to Algebra and Group Theory. For example, there are papers by Albert on Wedderburn's principal theorem for Jordan Algebras, by Jacobson on the theory of primitive rings, by Vandiver on a p-adic representation of rings and abelian groups and by R. Brauer on splitting fields of simple algebras. Also in this issue are found basic articles by P. A. Smith on foundations of Lie groups, by E. T. Bell on diophantine equations, Chevalley on algebraic Lie algebras, by Artin and by Bohenblust on the theory of braids (Artin treating mainly the geometric aspects of the theory and Bohenblust the algebraic), by Eilenberg and S. MacLane on cohomology theory in abstract groups, and several others.

In another paper by Eilenberg and MacLane published in the *Duke Mathematical Journal* there is given a purely algebraic interpretation of higher dimensional ($\geqq 3$) cohomology groups analogous to the group extension concept in the 2-dimensional case. In the same journal are to be found two additional papers bridging across the fields of algebra and topology, in both of these cases algebraic results being obtained with the aid of topological methods: Kaplansky obtains new theorems and new proofs of known theorems in valuation theory using topological methods. In particular he showed that if F is a field complete in a valuation and A is a complete metric algebra over F, then A is of bounded degree. Puckett showed that the closure algebra over a Euclidean space is a universal algebra for the class of all connected finite closure algebras. He proved the existence of certain interior transformations and used these in handling this and other related questions. His problem was suggested by an earlier contribution of McKinsey and Tarski.

The alternative division algebras over the real field R are: R itself, the field of complex numbers, the algebra of all real quaternions, and the algebra of all real Cayley numbers. Albert proved in 1947 that, as previously conjectured by Kaplansky, the alternative division algebras are the only absolute valued real algebras with a unit quantity.

NUMBER THEORY

The so-called Ramanujan function $\tau(n)$ is defined by the relation asserting the equality of the infinite product of the 24th power of $1-x^v$ for $v = 1,2, \ldots$ and the infinite sum of $\tau(n)x^{n-1}$, $n = 1,2, \ldots$ Several investigations on the possible vanishing of this remarkable function have been made since its discovery in 1916. In 1947 it was shown by D. H. Lehmer that this function can not vanish for $n < 3316799$.

In a paper published in the *Annals of Mathematics,* Marshall Hall proved that every real number is expressible as the sum of two numbers, each of which in turn is representable as a regular continued fraction with partial quotients not exceeding 4. Further, every real number < 1 is expressible as a product of two numbers with the same type of continued fraction representation.

GROUP THEORY

In connection with the Hilbert conjecture that any locally Euclidean connected group can be parameterized so as to become a Lie Group, Montgomery proved that any locally Euclidean connected and simply connected topological group of dimension > 1 contains a closed proper subgroup of positive dimension. Also in a paper on groups on analytical manifolds, Bochner and Montgomery improved on a former result of theirs to the effect that the group of all complex analytic homeomorphisms of a compact complex manifold into itself is a Lie Group by showing that this Lie Group is necessarily complex.

In an interesting study of topological rings published in the *American Journal of Mathematics,* Kaplansky developed structure theorems for compact rings. A notable feature of this development is the way in which compactness replaces classical chain conditions. Also the ring of continuous functions from a topological space to a topological ring is subjected to particular analysis.

TOPOLOGY

A satisfactory and usable criterion for metrizability of a perfectly separable topological space is afforded by the well-known regularity and normality conditions of Tychonoff and Urysohn. Without separability assumptions, no such comparable result is known. In a paper by R. H. Bing, published in 1947, a metrizability criterion for a topological space was developed which does not presuppose separability, by substituting a sequence of coverings of the space satisfying certain auxiliary requirements. It was shown by Dowker that in a metrizable space the property of paracompactness is equivalent to the property of being homeomorphic to a subset of general Hilbert space, a space being paracompact provided each covering of the space by open sets contains a locally finite refinement.

Combining topological and geometric methods, Gustin made a study of sets of so-called finite planar order, *i.e.,* sets in n-space which intersect every $(n-1)$-dimensional hyperplane in at most t points for some integer t. For example, it is shown that any such set of order t, where $t = n$, which is connected, is a simple continuous curve lying in the boundary of a convex set. Also in a paper published in the *Transactions of the American Mathematical Society,* S. Kaplan developed homology properties of arbitrary subsets of Euclidean spaces by using star-finite coverings instead of finite coverings as in the Cech theory, since the latter leads to particular situations for non compact spaces. He showed in particular that the family of countable star-finite coverings of a separable metric space form a complete family of coverings in the sense that it contains a refinement of any given covering of the space.

Using a generalization of the Alexander-Cech-Whitney cup product of co-cycles, Steernod succeeded in determining the homotopy classification of the mappings of an (n + 1)-dimensional complex into the n-sphere. H. Whitney published a preliminary account of a study of algebraic topology and integration theory indicating a treatment in terms of the chains and co-chains of algebraic topology of that part of the integration theory centering around Stokes' and related theorems. F. B. Jones introduced the notion of a folded open set and proved that a plane continuum is semi-locally connected if, and only, if its complement in the plane is "non-folded."

On the subject of continuous mappings viewed from the topological standpoint, an interesting fixed point theorem for upper semi-continuous multivalued transformations of an n-cell into itself was established by Hamilton and published in the *Duke Mathematical Journal*. In the same journal, P. A. White studied conditions on a transformation which, in addition to regularity assumptions, will insure the invariance of the generalized manifolds as defined by R. L. Wilder. J. H. Roberts showed that there exist countable fold open continuous transformations which increase dimensionality and that dimensionality can be increased or decreased at will by a 1-1 open transformation (not necessarily continuous).

An elementary theory of gratings, or sets of cuts, was developed by J. W. Alexander in a paper published in the *Bulletin of the American Mathematical Society*. This is shown to lead to homology theory in a natural way and to have numerous topological applications, introducing simplicity of formulation of topological problems among other advantages.

In connection with the question raised by Montgomery and Samelson as to whether there exists a compact fibering of some Euclidean n-space, Gail Young proved some interesting theorems about interior transformations on a plane from which it follows that no such fibering of 2-space can exist.

ASTRONOMY

By Rupert Wildt
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OBSERVATORIES AND ASTRONOMERS

Fifty years ago the Yerkes Observatory of the University of Chicago, located at Williams Bay, Wis., was formally dedicated. Dr. Otto Struve, for many years director both of the Yerkes Observatory and of the McDonald Observatory of the University of Texas, decided to hand over the directorship of both observatories to his collaborator, Dr. G. P. Kuiper, in order to devote himself to other tasks. Dr. Henry Norris Russell, director of the Princeton University Observatory, retired, and Dr. Lyman Spitzer, Jr., formerly of Yale University, became his successor.

On the occasion of the 400th birthday of the great Danish atronomer, Tycho de Brahe, the University of Copenhagen conferred honorary degrees upon Dr. Otto Struve and Dr. Harlow Shapley, the latter director of the Harvard College Observatory. The Astronomical Society of the Pacific honored Dr. Bernard Lyot, of the Paris Observatory, by awarding him the Catherine Wolfe Bruce Gold Medal. He is best known for his invention of the coronograph, an instrument permitting to photograph in broad daylight the faint glow of solar corona, formerly accessible to visual observations only during the brief minutes of a total eclipse of the Sun.

Leslie C. Peltier, of Dephos, Ohio, an amateur astronomer of unusual accomplishments, received an honorary degree of doctor of science in astronomy from Bowling Green State University, Ohio. He has discovered 10 comets, for each of which he received a Donohoe medal from the Astronomical Society of the Pacific, is credited with the independent discovery of two novae, and is also one of the high ranking observers for the American Association of Variable Star Observers.

In 1947 the American Astronomical Society held two meetings at Evanston, Ill. during the first week of September and at Columbus, O. during the last week of December. On the second occasion, Dr. Walter S. Adams, director emeritus of the Mount Wilson Observatory, delivered the annual Henry Norris Russell Lecture, his subject being "Gaseous Clouds in Interstellar Space."

At the optical shops on the campus of the California Institute of Technology, the figuring of the optical surface of the 200-inch mirror was completed. In November, the mirror was transferred to the new Astrophysical Observatory of the California Institute of Technology on Palomar Mountain in San Diego County. There the mirror will be coated with a highly reflecting layer of aluminum, produced by evaporating the metal in a vacuum chamber. The dome and mounting of the 200-inch telescope have been ready for some time, and thus operation of the giant instrument may start in the near future.

TOTAL ECLIPSE OF THE SUN

A total eclipse of the Sun on May 20, 1947 was studied extensively by four expeditions at Bocayuva, Brazil, although partial cloudiness hampered some of the projects. Moving pictures of the eclipse were flown to the United States, and within 61 hours after the event they were broadcast over the New York-Schenectady-Philadelphia-Washington television network. There were five expeditions stationed along the Argentine part of the eclipse track, and four of them were favored by the weather. Among these must be mentioned the expedition from the Argentine Naval Observatory, which filmed the eclipse with four sound-film cameras, registering the time signals on the sound track. This work was done in cooperation with the Finnish astronomers of the Helsinki Observatory to determine the difference in longitude of South America and Africa.

SUNSPOT

The current sunspot cycle is approaching the maximum of activity. The largest single sunspot ever recorded appeared in March 1947. By April the spot had divided into several parts which grew to form the largest group of sunspots ever observed. When largest, it appeared to cover more than one per cent of the apparent solar disk, its area being 6,300,000 square miles.

COMETS

The year 1947 was unusually rich in comets. By Dec. 13 comets had come under observation, but none of these objects was conspicuous to the naked eye. Then a spectacular comet, as bright as a first-magnitude star, was discovered close to the Sun by several observers in the Southern Hemisphere. At the time this annual review went to press, only meager information about this object was available in the United States. In particular, it remained doubtful if the comet would, before fading out gradually, move in its path around the Sun far enough to the North to permit detailed physical study by the powerful telescopes of the numerous northern observatories. Few big telescopes are located in the Southern Hemisphere, and even less are equipped with the auxiliary apparatus, like spectrographs and polarimeters, necessary for physical analysis of the comet's light. Our knowledge of the physical constitution of comets has little advanced during the last decades because Nature refused to provide astronomers with material suitable for study. Since the last passage of Halley's comet in 1910, there has not appeared another comet of comparable brightness, and the modern techniques of physical analysis developed since that time can profitably be applied only to such highly luminous objects.

The discoverer of one of the faint comets mentioned above, C. A. Wirtanen, also found at the Lick Observatory a minor planet, which proved to be one of the fastest moving of such bodies known. According to the calculations by L. E. Cunningham, it moves in a nearly circular orbit close to that of Mars, coming within 6,000,000 miles of Mars' orbit. The period of revolution around the Sun is about 27 months, the shortest period of any numbered minor planet except Eros. The new object is only a few miles in diameter.

NOVA

A nova appeared in the constellation of Sagittarius early in May 1947, but the exact time of its flaring-up is unknown. When the star was spotted accidentally on a photographic plate taken at the Mt. Wilson Observatory it was already past its maximum brightness, which probably did not exceed the eighth (photographic) magnitude.

MARS' ATMOSPHERE

The infrared sensitive PbS photoconductive cell, developed during the war for military purposes, is now rendering valuable aid in studying the chemical composition of planetary atmospheres. With such a cell attached to an infrared spectrometer, G. P. Kuiper, at the McDonald Observatory, has for the first time recorded the spectrum of Mars in the region of 1 to 2.5 microns. Carbon dioxide absorption bands near 1.6 microns were found to be about three times as strong in Mars' spectrum as in the spectra of the Sun and Moon taken at the same zenith distance. The carbon dioxide absorption in these comparison spectra results from the single passage of the celestial radiations through the Earth's atmosphere. Since the solar radiation reflected from Mars' surface has passed twice through this planet's atmosphere in addition to traversing the terrestrial atmosphere, triple strength of the carbon dioxide bands in the spectrum of Mars indicates that the planet's atmosphere contains approximately the same total amount in grams per square centimeter of carbon dioxide as the Earth's atmosphere. No other gases having strong infrared absorptions, like methane, ammonia, or nitrous oxide, were found; they could not be present except in exceedingly small quantities.

Repeated earlier attempts to identify carbon dioxide in Mars' atmosphere by other absorption bands, located in the photographically accessible infrared, had failed because these bands are intrinsically much weaker than the ones studied by Kuiper. The seasonal growth and shrinkage of the white polar caps and the appearance of transitory clouds, obliterating the surface detail, have generally been taken as evidence for the presence of water on the planet, but the direct spectroscopic proof is still outstanding. The technique introduced by Kuiper perhaps will also permit a spectroscopic test for water vapor on Mars. At any rate, Kuiper's observations go far toward justifying the prevalent opinion of a significant similarity between the atmospheric constitutions of Mars and Earth. On the other hand, the atmosphere of Venus is known to contain at least 100 times as much carbon dioxide as that of the Earth.

STARS AS MAGNETS

The origin of the magnetic field of the Earth is one of the major unsolved problems of cosmic physics. Already 55 years ago Sir Arthur Schuster suggested the association of magnetic fields with rotation in astronomical bodies, but it was not until 1913 that Hale and his collaborators at the Mt. Wilson Observatory established the existence of a weak general magnetic field on the sun, by measuring the minute splitting of suitable absorption lines (inverse Zeeman effect) in the solar spectrum. A comparison of the magnitude of the sun's general magnetic field and its equatorial speed of rotation (about 50 gauss and 2 km/sec., respectively) with the average equatorial speed of rotation for stars of type B, A, and early F (about 60 km/sec.) leads to the prediction that these may have magnetic fields of the order of 1500 gauss (at the poles), on the hypothesis that the field strength increases directly with the equatorial speed of rotation.

Rapid rotation of stars results in widening of stellar absorption lines and a characteristic line profile, quite common among early-type stars. But a small proportion of these have very sharp lines, showing little or no rotational broadening, and some of these stars are presumably in rapid rotation, with their axes directed nearly toward the observer on Earth. If strong magnetic fields exist in the latter sort of stars, the Zeeman effect may be sufficiently large to affect line width perceptibly; moreover, with plausible assumption regarding the characteristics of the field, it can be shown that the integrated Zeeman effect for spectrum lines will be preferentially in one direction, *i.e.*, the components of the lines transmitted through analyzers for right-handed and left-handed circularly polarized light will be displaced in opposite directions by amounts proportional to the field strengths and to the atomic Zeeman effects of the particular lines.

These predictions were made by H. W. Babcock, of the Mt. Wilson Observatory, and then tested by him through observations of the star 78 Virginis (spectral type A2p). Placing a differential circular analyzer in front of the slit of the coudé spectrograph of the 100-inch telescope, he discovered in the spectrum of this star displacements of the metallic absorption lines that are interpreted as a Zeeman effect, resulting from a general magnetic field having a strength of 1500 gauss at the pole. The coincidence of this figure with the predicted field strength is, of course, accidental. A control star, ε Pegasi (spectral type KO) showed no effect. Since no appreciable rotation has ever been detected for stars as late as G and K, it was to be expected that ε Pegasi would possess no strong general magnetic field, and that the Zeeman effect should not be observed in its spectrum. The test was sensitive enough, with the equipment used, to discover a field of at least 500 gauss. Since the Zeeman splitting increases with the square of the wave length, for constant field strength, a considerable gain may be expected in the future by going to the red or perhaps infrared region of the spectrum.

Furthermore, Babcock has proposed the query of whether the longitudinal Zeeman effect would be capable of giving the relationship between the polarity of a stellar magnetic field and the direction of rotation of the star. A decision might be possible if a measurable Zeeman effect should be found in one of the components of a visual double star where the direction of orbital motion is known, on the assumption that the sense of rotation on its axis is the same as that of the revolution in its orbit.

By the end of 1947, Babcock announced even more startling results for the star HD125248 (type AOp), which was known to exhibit strictly periodic changes in the strength of the absorption lines of ionized europium, while lines of ionized chromium vary in the opposite sense, but with the same period of about nine days. At the time of the maximum of the Eu II lines an integrated Zeeman effect corresponding to a general magnetic field had a strength of about between 7000 and 8000 gauss at the pole. During the Eu II minimum, when Cr II lines were strong, a Zeeman effect characteristic of a field of the order of 6000 gauss was observed, but the magnetic polarity was opposite to that found at the Eu II maximum. Practically all measurable lines show this reversal of polarity, including those of Ca II, Fe I, and Fe II. A single plate at intermediate phase, on which both lines of Eu II and Cr II are visible, exhibits considerable variance in the effects on the several lines, some appearing to be of one polarity and some of the other, but the average effect corresponds to a field near zero.

SPOTS ON STARS

The importance of these magnetic discoveries for astrophysics in general can hardly be overestimated. So far the only place in nature where magnetic fields of several thousands of gauss are observed has been in the sunspots, whose physical constitution is still quite obscure. Sunspots, however, cover only an insignificant part of the Sun's total surface, even at the peaks of the sunspot cycle. Their existence could hardly have been anticipated from a study of the total light of the Sun before the advent of the modern precision methods of photoelectric photometry, in whose development G. E. Kron has taken an important part. Are the stars showing magnetic effects, in the light integrated from all over the disk, then covered with huge spots? It would be rash to jump to this conclusion. But recent work at the Lick Observatory has indeed given convincing evidence of the existence of dark patches on the surface of a star of spectral type G5 (N.B. stars of this type do not rotate rapidly and therefore would not be suspected of carrying measurable magnetic fields). This star is the fainter component of the eclipsing variable AR Lacertae, whose other component is a KO star.

During his systematic study of the light curve of this system, which has a period of almost exactly two days, Kron noted small abrupt irregularities in the light variation, occurring during the eclipse of the G star by the K star, his discovery being due to the extreme accuracy of his photoelectric photometry. An examination of all data for AR Lacertae shows that, without exception, the irregularities repeat themselves with high precision from one revolution of the binary to the next, but that changes in the nature of these irregularities take place within a few weeks to a few months. The peculiar variations can be explained on the hypothesis that the surface of the G5 star has upon it huge light and dark patches, undergoing eclipse by the KO star. The patches must be of such size that a projected hemisphere at times has as much as 20 per cent of its area covered, while individual patches cover as much as 3 to 5 per cent of the area. The observations not only indicate that the patches are eclipsed by the KO star, but that they move, and that they form and dissolve. Moreover the patches appear and disappear around the limit of the stellar disk, with rotation of the binary. Kron expects a critical study of large numbers of accurate observations of AR Lacertae may lead to a detailed picture of the sizes, latitudes, and motions of the patches.

STELLAR PROMINENCES

Luminous eruptions from the Sun, named prominences, are easily seen during a total solar eclipse, when the blinding light of the disk is shielded by the dark Moon. Using a spectroscope, they can also be watched outside eclipses, because of the bright-line spectrum emitted by these gas clouds, and in recent years their development and decay has even been studied by cinematography. Such moving pictures of prominences, forming irregularly shaped clouds, or fountain-like ejections, and sometimes arches appearing to rest at both ends on the solar surface, never fail to make a deep impression on the spectator, astronomer and layman alike. While most prominences are objects small compared with the Sun, at least one instance is known when an arch-shaped prominence blew up to a height almost equal to the solar radius. It is interesting to speculate what sort of a view this phenomenon would have afforded to an astronomer on a star so remote that the apparent diameter of the Sun's disk had sunk below the optical resolving power of his telescope. Pointing a spectroscope at the Sun, this astronomer may have been surprised at the short-lined appearance of a bright emission spectrum superimposed upon the dark-line, or Fraunhofer, spectrum of the Sun, provided that the amount of light emitted by the prominence was comparable with the total light of the Sun. Conversely, one may ask: have prominences ever been observed on other stars?

Many stellar spectra indeed are known to have bright-line features, and some stars have emission lines undergoing with time. The routine studies of stellar spectra, of which it is impossible to give an accurate account in an annual review like this, have led to the accumulation of an immense wealth of observational data still awaiting physical interpretation. Compared with absorption spectra of the stars, their emission features are not well understood, particularly those of the so-called later spectral types (G,K,M). The emission features of many stars of spectral classes A and B have been explained satisfactorily, essentially through systematic studies by O. Struve, as resulting from luminous gaseous shells and rings surrounding these stars. These objects appear to be of stationary nature mostly, thus differing from the solar prominences. Recently, however, Struve has studied a star, UX Monocerotis, whose variable spectral characteristics he feels can best be explained by postulating semi-permanent features not unlike the big arch-shaped solar prominences. This star is an eclipsing binary, consisting of a small A-type star and a large more massive G-type star. Struve suggests that gas is flowing almost constantly from A star to the G star in roughly semicircular orbits (the line connecting the two stars forming the diameter of the semicircle), and that there is a second symmetrical current from the other side of the G star to the other side of the A star. As the two stars revolve around their center of gravity, the gas current gives rise, for an observer on Earth, both to emission and absorption lines showing variable radial velocity, according to the varying orientation of the system with respect to the line of sight.

SMALL DARK NEBULAE

In recent years the problem of the origin of the giant stars has gained prominence in cosmogenic speculation. Many stars are observed whose energy output is so great that the known sources of atomic energy production would not suffice to keep them shining at the present rate for more than a small fraction of the period now generally believed to represent the age of our galactic system, that is to say, a few billion years. Very likely, therefore, these stars have originated, so to speak, in "historic" times, and the birth of giant stars may be continuing in our stellar system right now. This surmise naturally leads to the question of whether the early stages of this evolutionary process, protostars as Spitzer has called them, can be identified by observation. Theoretical investigations by F. L. Whipple and L. Spitzer have attempted to formulate a gravitational theory of the condensation of stars from a tenuous medium of interstellar gas and solid grains. No conclusive results have been reached so far, but it becomes necessary, at any rate, to survey the evidence for the presence in our galaxy of relatively small dark nebulae, since these probably represent the evolutionary stage just preceding the formation of a luminous star.

Large dark nebulae, mostly of irregular shape and often like wind-blown wisps, appear in projection against the rich star fields of the Milky Way. These objects have forced themselves upon the attention of astronomers since the early days of celestial photography and have since been subjected to intensive study. A systematic search for small dark circular or oval nebulae, the hypothetical protostars, was recently undertaken at the Harvard Observatory by B. J. Bok and E. F. Reilly, who for convenience refer to these objects as "globules." Inspection of a large variety of published photographs revealed numerous globules with angular diameters ranging from 5 seconds to 10 minutes. They seem to show a preference for the regions of Sagittarius and Ophiuchus and for the Scutum cloud, but some isolated examples of large globules are found in the anticenter region of the Milky Way. The region of the diffuse nebula Messier 8 abounds with globules. The emission nebula near η Carinae is also rich in globules. In order to find the true diameter of these objects from the angular one, their distances must be known. Estimates of the distances, based on methods which can not be discussed here, give linear diameters of 12 globules near Messier 8 between 10,000 and 35,000 astronomical units (mean distance from Earth to Sun), but some globules near the anticenter region appear to have diameters of the order of 100,000 astronomical units. Judging by the light of stars shining through some of these objects, the extinction of light along its path through the globules is from 2 to 5 magnitudes for the smaller ones, and about 1 magnitude only for the largest ones. Further investigation of the amount of extinction may permit the estimation of the total mass of the globules. These interesting objects merit careful study with the powerful Schmidt telescopes now being put into operation and with the largest available reflecting telescopes.

THE INVISIBLE NUCLEUS OF OUR GALAXY

From the days of the elder Herschel it has been recognized that the concentration of stars toward the Milky Way in the heavens means that they are actually grouped in space in a region having roughly the shape of a flattened disk. But our notions of the linear dimensions of the entire system were rather slow to evolve and had to be revised fundamentally in recent years, because it is now realized that the Galaxy contains vast masses of obscuring matter in the form of interstellar dust. This tenuous haze extends only a few hundred parsecs on either side of the galactic plane, probably thinning out gradually. Space beyond must be extremely clear for there is little or no evidence of increased absorption of light for very remote star clusters and nebulae, looking at right angles to the galactic plane. However, obscuration is so heavy in all directions around the galactic plane, that the study of the spatial arrangement of stars throughout our system is seriously interfered with. In fact, it is admitted now that the nucleus of the Galaxy is hidden from view by obscuring matter. Dynamical analysis of stellar motions reveals the approximate position of the gravitational center of the Galaxy among the great star clouds of the constellation Sagittarius. But these star clouds themselves, conspicuous though they are, are much too close to the Sun to be identified with the galactic nucleus; for stellar dynamics locates the gravitational center at a much greater distance, causing an estimated obscuration of 10 stellar magnitudes in blue light. Shall the astronomer's curiosity forever be denied access to the core of our stellar system?

There appears to be some hope of penetrating the cosmic fog, according to recent work at the Mt. Wilson Observatory. Astronomers have long been aware of the haze-piercing power of red or, still better, infrared radiation, a phenomenon now generally familiar from its wartime application to aerial photography. Practical application of the principle was delayed by lack of sufficiently fast infrared-sensitive photographic plates. Instead, J. Stebbins and A. E. Whitford have brought infrared-sensitive photoelectric cells to bear upon the problem of the galactic nucleus, working at effective wave lengths of 10,300 A and 7190 A. At the focus of the 60-inch telescope a diaphragm, selecting a field in the sky of 8.6 minutes of arc in diameter, was placed in front of the photoelectric cell. The sky was allowed to drift with the diurnal motion across this diaphragm, and the intensity variation during each sweep was recorded automatically. The sweeps of successive longitudes usually gave maxima near the galactic equator, outlining a bulge extending about 8° in longitude and 4° or 5° in latitude, with center near galactic longitude 326.5°. The light of this bulge adds up, when corrected for obscuration, to a total quite comparable with light, also observed by Stebbins and Whitford, of an equal section of the great spiral nebula in Andromeda, which is now generally regarded as a system closely akin to the Galaxy. Repetition of this work with photocells sensitive to infrared light of even greater wave length, which is planned for the near future, may bring a still better view of the nucleus of our stellar system.

PERIODICAL PUBLICATIONS

American Journal of Mathematics
Johns Hopkins Press, Baltimore.
American Mathematical Monthly
Illinois Institute of Technology, Chicago, Ill.
Annals of Mathematics
Princeton University Press, Princeton, N. J.
Astronomical Journal
Yale University Observatory, New Haven, Conn.
Astrophysical Journal
5750 Ellis Ave., Chicago.
Bulletin of the American Mathematical Society
531 West 116th Street, New York City.
Duke Mathematical Journal
Duke University Press, Durham, N. C.
Journal of Mathematics and Physics
Massachusetts Institute of Technology, Cambridge, Mass.
Popular Astronomy
Carleton College, Northfield, Minn.
Publications of the Astronomical Society of the Pacific
129 Twenty-fourth Ave., San Francisco, Calif.
School Science and Mathematics
3319 N. 14th St., Milwaukee, Wis.
Sky and Telescope
Harvard College Observatory, Cambridge, Mass.
Transactions of the American Mathematical Society
531 West 116th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASTRONOMICAL SOCIETY, Dearborn Observatory, Evanston, Ill.

AMERICAN MATHEMATICAL SOCIETY, 531 W. 116th St., New York City.

MATHEMATICAL ASSN. OF AMERICA, Cornell University, Ithaca, New York.

NATIONAL ACADEMY OF SCIENCES, 2101 Constitution Ave., Washington, D. C.

DIVISION XIX

ENGINEERING AND CONSTRUCTION

STRUCTURAL ENGINEERING

By Walter E. Hanson
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GENERAL

The construction industry, second only to agriculture, continued to grow throughout 1947 with some indication that construction costs had reached their peak and were becoming somewhat stabilized at a level substantially above that of pre-war days. Some examples of efforts to stabilize construction costs were evident during the year. A few labor organizations and the contractors with whom they work were able to reach agreements to freeze wages at current scales for a certain period. The new wage agreements were entered into to stabilize the major element of uncertainty in construction costs, thus helping contractors to reduce the factor for labor contingency in their estimates. Another stabilizing influence was a small trend toward firm-price quotations from equipment and materials suppliers.

The increase above pre-war costs has been about the same as the general average for other services and commodities. Nevertheless, there was considerable evidence during 1947 that many construction projects were being deferred waiting for a considerable drop in costs. Most contractors agreed that no single cause is responsible for current high construction costs. Reductions will come only through elimination of uncertain ties, increased productivity of workmen, a more regular supply of materials, increased efficiency by management, improved methods of construction, and a number of other factors.

Evidence that our industrial system was not yet back to normal was found in many parts of the country in the form of completed bridge piers standing idle, waiting for steel. Major examples of this existing condition were the piers for the bridge at Memphis, Tenn., and the piers of the Tacoma Narrows Bridge. In both cases, construction progress was stopped or severely retarded because steel was either found to be too costly or not to be had at all.

The total dollar volume of United States construction contract awards during 1947 was about 7 per cent above 1946. The increase was the result of more public construction, which showed an increase of about 18 per cent. Private and other construction fell a few per cent below the record high of 1946. The high volume during 1947 was attained despite a mid-season slowdown in the heavy construction category. The construction industry observers have pointed out that the upswing was due to general acceptance of current conditions which resulted in decisions to go ahead with construction.

If personal and industrial income continue throughout 1948 at the high level existing at the end of 1947, there is reason to believe that some increase in construction volume is inevitable for the coming year.

RESEARCH

The continued unparalleled popularity of research, such as the world has never seen, was evident everywhere during 1947. Industry, Congress, state legislatures, and private philanthropists were swayed more easily by appeals for research than for any other activity. Everywhere there is growing evidence that structural designers consider it unwise to embark on a major engineering project without taking advantage of the many scientific aids that are available for developing and testing new materials and methods as well as improving past practices. With construction volume at the 1947 level, it is apparent that even small improvements in design and construction procedure result in marked savings.

The Commerce Department's Office of Technical Service awarded several contracts for research of significance to the construction industry as a part of a $1,500,000 comprehensive research program. The Civil Works Division of the Corps of Engineers initiated an investigation and research program of much greater scope than any previous undertaking. About $500,000 of the research under the Civil Works Division will deal with structural problems. Along with the expanded programs under the direction of the Bureau of Reclamation has come increased activity in its research laboratories.

Funds for research to be administered through the engineering experiment stations of universities and colleges increased many times over those available during previous years. Experiments continue in university and governmental laboratories, directed toward the goal of better understanding of the behavior of concrete in the plastic range. More experimentation is still needed, and when completed, will no doubt bring about more accurate and economical design methods.

The aerodynamic instability of bridges continued to receive the attention of several engineers and engineering organizations. Several test programs continued to make progress, one of which was the investigation and classification of a wide range of sections by wind-tunnel tests. The results of completed tests indicate that certain cross-sections have complete aerodynamic stability. These and subsequent tests will no doubt provide data invaluable to the designers of long-span bridges.

AIRPORTS

The $1,000,000,000 national airport program under the supervision of the Civil Aeronautics Administration was put into operation during 1947. Allocation of funds put approximately $70,000,000 of work underway for the improvement of 400 existing fields and construction of an equal number of new fields. The complete program contemplates the construction or improvement of over 4,400 civilian airports of five general classes over a period of seven years. Airfields have been divided into five classes varying from Class 1, which will carry small privately owned planes, to Class 5, for planes weighing over 74,000 lbs.

One of the larger and more interesting airport developments in the United States during 1947 was the $20,000,000 expansion of the San Francisco Municipal Airport. The construction included a 6,000,000 cu. yd. fill which was carefully controlled during placing operations to consolidate effectively the underlying mud. One of the more difficult problems was the construction of a safely compacted, stable fill in an area covered by water over a soft mud bottom reaching to a depth of 80 ft. in certain places. The fill was placed in a manner which squeezed out the undesirable material as the fill progressed and effectively compacted such mud as remained.

A new $13,000,000 airport for Baltimore, Md. was under construction during the year. The contractor, after some experimenting with loading, hauling, and compacting machines, reached a steady pace of moving some 50,000 cu. yd. of material per day. A 200-ton super-compactor on large pneumatic tires is expected to solidify the material sufficiently so that a comparatively thin pavement can be used. The super-compactor will be used to compact undisturbed material so that excavation and replacement will not be necessary.

BRIDGES

Very few large bridges were actually under construction during 1947. The coming year will no doubt witness the start of several large bridge projects now in the planning stage. A large number of small bridges and grade separations were completed as part of the development of highways and expressways, but these are too numerous to warrant discussion.

The Eads Bridge over the Mississippi River at St. Louis, Mo., after 74 years of service, now carries increased highway and railway traffic. A new highway deck was completed in 1947, substituting new steel floorbeams with I-Bm-Lok decking for old steel and wrought iron floorbeams with timber stringers and decking. No appreciable delay in the steady flow of traffic was reflected at the toll house because two lanes of traffic were kept open during construction.

A $2,000,000 highway bridge across the Feather River at Marysville, Calif. was completed in August 1947. The bridge is 2,693 ft. long with a deck width of more than 66 ft., rising about 70 ft. above the river bed. Steel plate girder spans, varying in length from 46 to 161 ft., are used as required to fit the topographical features and the 23 ft. adopted spacing of floorbeams. The tall conspicuous piers for the bridge were carefully designed and proportioned. During most of the year, they will extend as much as 55 ft. above the dry river bed, but in time of flood the water rises 40 ft. above low water stage. The swift current and heavy drift carried by floods made it inadvisable to use open column bents or towers, so streamlined piers were designed, presenting a smooth and continuous surface to stream flow up to a level above flood height.

Two San Francisco Bay crossings were recommended during 1947. A new bridge parallel to and just north of the present San Francisco-Oakland Bay Bridge was proposed at a total cost of about $100,000,000. A causeway-tube crossing, estimated to cost about $135,000,000, was advocated by an Army-Navy board. The California Toll Bridge Authority has approved both crossings for construction, and, after further engineering studies, will decide which of the two structures is to receive first priority.

USE OF PRECAST CONCRETE BUILDING CONSTRUCTION

Many engineers believe that the simulated factory production approach to construction offered by the use of precast concrete will eventually play an important role in post-war building construction. With the completion of each new project using this new technique will come improvements in design and construction procedure.

Precast reinforced concrete floor slabs were produced on a mass production basis and used to expedite the construction of 110 buildings for a United Nations' housing project in New York. Nine different designs comprise the 110 buildings in which the types of floor slabs required were held to a minimum to simplify the form work. The relatively small number of 100 molds were used to precast 6,800 slabs.

Two concrete storehouses were completed at the Naval Supply Depot, Mechanicsburg, Pa., as experiments to explore the possibilities and relative merits of precast concrete as compared with other methods of construction. The bents which support the roof framing and provide partial support for the walls under wind loading were built from a number of precast hollow box sections. The roof slab and framing was precast in ribbed panels 5 ft. wide and 20 ft. long.

Another example of the use of precast concrete construction is a sales building in Pittsburgh, Pa. It is one of the first two-story precast concrete structures. Ample lateral stiffness is claimed, despite the fact that the designers of the building made no attempt to maintain continuity as far as frame action is concerned. Here again, as in the case of all precast structures, the units were made by mass production methods. Forms for the structural members were all of steel construction and adjustable to the variation in girder and column dimensions. Field erection of the structural frame for this 110 x 120 ft. two-story building was completed in 13 working days.

NEW DESIGN PROBLEMS AT THE NAVAL AIR STATION IN MARYLAND

The testing of aircraft electronic devices introduced some new design problems for the structural engineer to solve at the Naval Air Station, Patuxent River, Md. A hangar nearly completed in 1947 will accommodate the testing of electronic devices under installed service conditions in all types of Navy aircraft. The entire interior of the hangar is shielded by galvanized wire mesh to provide a minimum of electronic interference. Other efforts to minimize the electronic disturbances include the use of double doors, bonding of water pipes to the shield, and the installation of the lights in a way which places any associated disturbance above the wire mesh shield. The hangar has no windows, a design feature which makes possible the continuous shielding provision.

FOUNDATION PROBLEMS IN BOSTON AND CINCINNATI

The construction of the new John Hancock Mutual Life Insurance Company office building in Boston proceeded throughout 1947 and should be mentioned primarily because of the extraordinary foundation problems. Bedrock varies from 128 ft. to 160 ft. below street level. A floating foundation was not considered practicable because of the excessive weight of the structure. The caisson type foundation was abandoned because of the risk of disturbing the underlying soft blue clay which might result in the settlement of surrounding structures. H-pile sections were selected on the basis of economy and as the type of foundation that would cause a minimum amount of disturbance to the subsurface strata. On the basis of satisfactory load tests on two test piles driven to bedrock, a value of 90 tons per pile was permitted by the Boston Building Department for the 14-in., 117 lb., H-piles used on the job. Approximately one-third of the piles was received in single lengths, the remainder was spliced by welding. A total of 1,637 piles was used in the foundation.

Some phases of the construction of the Terrace Plaza Hotel and store building in Cincinnati, O., are of interest to structural engineers and constructors. Test borings indicated that rock was more than 150 ft. below street level. However, the presence of sand and gravel formations of good bearing value at the subgrades required for the lowest basement levels made it possible to use a concrete mat type foundation. During the excavation for the foundation, extending to a maximum of 55 ft. below street level, one large adjacent building required extensive underpinning, while another was prevented from subsiding by the installation of steel sheet piling with a prestressed supporting structure in the form of cross-lot bracing. During erection of the steel the confined construction area and the absence of storage space at the site necessitated accurate coordination between delivery of the steel and its erection.

DAMS AND RELATED CONSTRUCTION

The U. S. Army Engineers and the Bureau of Reclamation accelerated their planning and construction activities, looking toward the earliest possible realization of benefits from the developments of land, water, and related resources in almost every state. The Union Village Dam in the Connecticut River Basin, under the Army Engineers, and the Central Valley Project in California, under the Bureau of Reclamation, are two projects which demonstrate that the United

States, from one end to the other, is benefiting from the work of these two great organizations. Construction on some of the larger projects was retarded early in 1947 because of inadequate funds, but in general the momentum achieved in 1946 was carried through 1947 with a considerable increase in new construction.

CENTRAL VALLEY PROJECT

The Central Valley project in California is one of the largest development programs under the supervision of the Bureau of Reclamation. Progress was necessarily retarded because of the wartime curbs on nonmilitary construction, but, during 1947, construction without appreciable restriction resulted in the completion of some of the individual projects which comprise this large program. Some parts of the Central Valley project are now in operation, but the major function of the project—that of diverting water from the Sacramento Valley in the north for use in the San Joaquin Valley in the south—can not be performed until 1949 or 1950.

Shasta Dam, the largest and most costly single item of the Central Valley project, received a small amount of final construction during 1947 with the installation of three drum gates. The dam is a concrete structure, second only to Grand Coulee in size. It is 500 ft. high and provides a reservoir storage capacity of 4,500,000 acre-ft.

The construction costs of the Delta-Mendota Canal and the Friant-Kern canal rank second and third, respectively, to Shasta Dam. The Delta-Mendota Canal will have a capacity of 4,600 cu. ft. per sec. and will extend from the Sacramento-San Joaquin delta some 120 miles south to Mendota. The Friant-Kern Canal was the scene of the greatest construction activity on the Central Valley Project during 1947. It will be about 160 miles long, and its capacity of 4,000 cu. ft. per sec. will be available for water flowing from Friant Dam to the arid and now almost waterless area in the southern end of the San Joaquin Valley.

COLORADO-BIG THOMPSON PROJECT

Nine years have elapsed since construction was initiated on the Colorado-Big Thompson project, and it is estimated that at least five more years must pass before the major elements of the project are in full operation. Progress was retarded by the war, and spiraling prices have increased costs; nevertheless, a vast amount of new work was started during 1947. With the completion of the project will come the realization of the pioneer dream of bringing western slope water to the eastern side of the Continental Divide in quantities sufficient for extensive irrigation.

The principal elements of the Colorado-Big Thompson project are: (1) Western slope storage facilities to capture excess waters of the Colorado River; (2) a 13-mile tunnel to bring these waters eastward under the Continental Divide; and (3) terminal storage reservoirs on the eastern slope foothills, along with distribution canals to provide supplemental water to land already under irrigation. The 13-mile Adams tunnel, longest tunnel ever driven from only two portals, was opened in June 1947. The major part of the construction during 1947 centered in three locations; (1) at Granby reservoir which stores excess water from the Colorado and its tributaries; (2) in the Estes Park area at the eastern end of the Adams tunnel; and (3) at the Horsetooth terminal reservoir which is one of three foothills storage reservoirs.

ANDERSON RANCH DAM

Except for minor construction, Anderson Ranch Dam was completed during 1947. Located on the South Fork of the Boise River, the dam will create a 500,000 acre-ft. reservoir, supply supplemental water for irrigation of 320,000 acres of land, provide power, and aid in flood control. Although not completed to full height until 1947, the dam provided water for irrigation of the Boise Valley during both the 1946 and 1947 seasons. The dam claims distinction as the highest rolled-earth fill structure in the world. It is 456 ft. high above foundation with a thickness at stream-bed level of 2,500 ft., requiring 9,078,000 cu. yd. of fill. The crest has a length of 1,400 ft. and a width of 40 ft.

DAVIS DAM

Continued progress was made on the Davis Dam project, which is the largest undertaking by the Bureau of Reclamation on the Colorado River since Hoover Dam. Work was resumed in March 1946, and it is hoped that by the latter part of 1949 the Davis power plant will be in operation. The dam is located in Pyramid Canyon near Kingman, Ariz. where it will serve to regulate the river below Hoover Dam, augment the power facilities in the Southwest, and fulfill the Mexican Water Treaty obligations between the United States and Mexico. The dam is a zoned, rolled-earth and rock-fill structure, 1,600 ft. long and 138 ft. high above the river bed, requiring 3,800,000 cu. yd. of earth and rock fill. The reservoir capacity will be 1,820,000 acre-ft. at a normal water surface which corresponds to the tailwater elevation at Hoover Dam.

Excavation operations on Davis Dam during 1947 revealed certain foundation weaknesses which necessitated some changes in the design of the intake structure, power plant, and spillway. The foundation weaknesses involved areas of severely jointed rock and zones along which the rock is decayed and crushed. In order to consolidate the foundation rock and increase its bearing strength and imperviousness, a thorough grouting and foundation treatment program was carried out.

GARRISON DAM

When completed during the next six or seven years, Garrison Dam will be the world's largest rolled-earth-fill dam, having a volume of 75,000,000 cubic yards and a reservoir having a storage capacity of 23,000,000 acre-ft. Most of the construction on the dam during 1947 was in the form of preliminary projects, including an access railroad, access highway, construction bridge, and construction town. The dam is located 75 miles north of Bismark, N. D., in an area not accessible by improved highway and railway facilities, which accounts for the large construction program prior to the actual construction of the main dam. Each of the four contracts—access railroad, access highway, construction bridge, and construction town—was awarded in 1946, but work was delayed by the shortage of critical materials to the extent that the completion dates for all four projects were extended well into 1947.

The first contract provided for the construction of 11.8 miles of railroad connecting the Soo Line Railroad with the construction town. The second contract for the construction of the access highway connects the U. S. Highway 83 with the construction town. The third contract for the construction bridge provided a deck steel girder combination highway and railroad bridge across the Missouri River at the down stream toe of the dam. The fourth contract, for the most part completed in 1947, was for the construction of the town of Riverdale, providing 80 temporary buildings with grading, roads, and utilities to serve the needs of an estimated 450 employees of the contractor and the Government during the initial stages of dam construction. Future contracts will expand the facilities of the construction town to serve the needs of 2,400 employees.

The construction bridge contains many interesting features. The bridge consists of 9-150 ft. spans supported on concrete-capped pile piers. In March 1947, two of the eight piers that had been completed in the fall of 1946 were subjected to extreme forces resulting from a severe ice jam during the spring breakup of the frozen Missouri River. The piers were undamaged, but it was found advisable to raise the bridge 10 ft. to minimize the possibility of damage in event of another severe ice jam. The increase in elevation was accomplished by increasing the height of the concrete cap, maintaining the steel piles and other construction parts as originally planned. Load tests on two piles indicated no substantial ultimate settlement for loads of 150 and 190 tons.

CHAIN OF ROCKS PROJECT

Various construction phases on the Chain of Rocks project on the Mississippi River near St. Louis progressed throughout 1947. The project is designed to improve the seven-mile Chain of Rocks reach which has interfered with river traffic from the earliest days. The average fall of 1.5 feet per mile in this reach has produced stream velocities exceedingly difficult to navigate. Furthermore, the navigable depth at extreme low water is reduced to approximately 5.5 ft., thus preventing full use of the improved 9 ft. waterway available above and below this section of the river.

It is estimated that at least four years will be required to complete the project. Plans call for 27,700,000 cu. yd. of excavation for an 8.4-mile canal with proposed locks containing 400,000 cu. yd. of concrete at the lower end of the canal. Two contracts underway as a part of this project, which received considerable advancement during 1947, were for the construction of a bridge over the future canal to permit relocation of U. S. Highway 66 and for the dredging of a pilot channel to provide water access to the lock site during the construction period.

WOLF CREEK DAM

The construction of Wolf Creek Dam on the Cumberland River, near Jamestown, Ky., progressed into the concreting stage during 1947. This rolled fill and concrete structure is a project under the U. S. Corps of Engineers and serves as a key dam in the flood control system on the Cumberland River. Reservoir capacity at the fixed spillway crest is 4,000,000 acre-ft. at a 168 ft. head. About 2,000,000 acre ft. of storage above the spillway crest is reserved for flood control. The amount available for power is 2,000,000 acre-ft.

BLUESTONE DAM

After a delay resulting from the war, the construction of Bluestone Dam on the New River near Hinton, W. Va., was resumed in 1946 and continued through 1947. The dam is a project of the U. S. Army Engineers, providing flood control and possible future development of power in a mountainous area of high runoff. This concrete gravity structure will have a head of 150 ft. and store 622,800 acre-ft. of water at maximum flood crest. Because the waters of the Bluestone Reservoir will flood some existing roadway, the West Virginia highway department has under construction the highest bridge in the state. The piers are 145 ft. high for this bridge, which is part of a general relocation of the highway in the area.

CONEMAUGH PROJECT

The U. S. Army Engineers' Conemaugh reservoir flood-control project on the Conemaugh River 30 miles east of Pittsburgh, Pa., is of interest because the cost of the dam and its appurtenances is estimated to be only about 30 per cent of the total cost of the project. Items in the project, other than the dam itself, will assume larger proportions both in the amount of work involved and cost of construction. The major projects incidental to the actual construction of the dam include 16 miles of railroad relocation and a 2,660 ft. double-track tunnel.

MUNICIPAL DEVELOPMENTS

Cities throughout the United States continued to announce long-range plans looking toward coordinated solutions of municipal problems. Major programs were adopted in an effort to alleviate problems of housing, business area construction, traffic and parking congestion, airport facilities, zoning laws, water systems, sewerage disposal methods, and many others. Only a few of the major advancements in municipal development will be mentioned.

New York City started work on the largest storm sewer in the world in suburban Queens. New Orleans approved a $23,500,000 bond issue to finance a new union terminal and other developments. Baltimore voted $39,500,000 for the construction of schools, an airport, sewers, a municipal stadium, and parking facilities. Los Angeles approved a $50,000,000 bond program to finance municipal projects and also started construction on the $43,000,000 21-mile Harbor Parkway. Cleveland started work on a rapid transit system for which $22,000,000 has been approved to finance the initial work. Philadelphia has construction underway on part of a subway extension program.

THE BROOKLYN-BATTERY TUNNEL

The Brooklyn-Battery Tunnel, under construction for several years, advanced considerably during 1947 toward its final completion date scheduled for 1949. A vehicular facility, the tunnel will connect existing and proposed express highways in Brooklyn with the West Side Express Highway and downtown Manhattan at Battery Park. The two 31-ft. diameter tubes have a length of 9,117 ft. portal-to-portal, passing under the main channel and a side channel of the East River. The original estimate of the cost of the tunnel made in 1939 was $80,000,000.

COLORADO RIVER AQUEDUCT

Construction was nearing completion on a 71.1-mile aqueduct which will carry Colorado River water from the Metropolitan Water District system at San Jacinto, California to the impounding reservoir of the San Diego City System. This $12,500,000 project was originally planned as a wartime emergency project to augment the existing San Diego water supply. Under the present plan established in 1946, the San Diego County Water Authority will reimburse the Federal Government annually until the true costs of the aqueduct have been repaid.

Concrete pipe used in construction of the aqueduct consisted of four sizes—48, 54, 72, and 96 in. diameters. All 48, 54, and 72 in. diameter sections were precast in 16 ft. lengths, while the 96 in. diameter pipe was manufactured in 12 ft. lengths. All the pipe was hauled to the site on trucks and trailers. The aqueduct contains seven concrete-lined, 6 ft. diameter tunnels of horseshoe-shaped cross-section varying in length from 500 to 5,350 ft. The character of the material encountered in the tunnel construction was largely blocky granite requiring no supports.

The aqueduct was designed to deliver initially half the amount of the 112,000 acre-ft. yearly storage in Lake Meade allocated to the City of San Diego. The tunnels were built to carry the entire allocated quantity when warranted by the demands. The increased capacity will require the installation of a second parallel pipeline between the reservoir and the tunnels.

THE MAINE TURNPIKE

The first phase of the Maine Turnpike, which may in the future extend some 450 miles from Kittery in the south to Fort Kent in the north, was completed and placed in operation during 1947. The 44-mile section opened to traffic in December connects Kittery with Portland. It is the first U. S. highway in nearly a century to be financed privately on the basis of anticipated revenues, with no subsidy from governmental agencies. Extension of the Turnpike will depend on the use and income of this first 44-mile section, and because it is the pioneer in the field of privately financed toll highways, it will be watched with interest by proponents of other similar projects.

The road surface for the Maine Turnpike is asphaltic concrete placed in three courses, having a total depth of 7 to 8 in. over carefully compacted supporting material. The road is a dual highway with two 24-ft. lanes separated by a constant width of 26 ft. Each roadway has a 4-ft. paved shoulder adjacent to the median strip and an 8-ft. paved shoulder along the outer side. The maximum gradient is 4 per cent, and the maximum curvature is 1 degree. Minimum sight distance is 525 ft. from a position 4.5 ft. above the roadway to an object 4 in. high on the roadway surface. Access to the Turnpike is limited to four traffic interchanges in the 44-mile length.

OTHER PARKWAYS AND TURNPIKES

A 486-mile throughway is being built from the New York metropolitan region up the Hudson River Valley and across the state to the Pennsylvania line. Construction during 1947 omitted small portions where large bridges must be built. Plans have been made for construction of the bridges as soon as the steel market becomes less critical. Access to the highway is denied from all abutting private property, and no intersections are at grade with other highways. Legislation, empowering the Department of Public Works to proceed with this construction, was passed in 1942. As a result of wartime restrictions, work was not actually started until mid-year 1946.

Construction is underway on a superhighway passing south of Pittsburgh and connecting with the Pennsylvania Turnpike at New Stanton, Pa. This toll-free, divided 4-lane highway crosses major mountains with a maximum grade of 3 per cent and only 38 curves in its 38-mile length. The road will not be limited in access. The grade separations and interchange ramps, provided at all intersections with important highways, involves considerable structural work. Several bridges will be built, largest of which will be a steel arch with a main span of 450 ft. over the navigable Monongahela River.

Another project underway at the western end of the Pennsylvania Turnpike is the Penn-Lincoln Parkway to connect downtown Pittsburgh with the William Penn and Lincoln Highways and the Pennsylvania Turnpike. The project will cost between $35,000,000 and $40,000,000 and will include four lanes, six interchange points, 34 bridges, and 4,225 ft. tunnel.

The State of New Jersey has started construction of a new highway which will ultimately become four separated two-lane roadways. This freeway designated as "dual-dual" highway is the first major attack on a traffic problem in northern New Jersey that is without parallel in the country.

The 476-mile Blue Ridge Parkway, when completed, will connect the Shenandoah and Great Smoky Mountains National Parks and provide a 573-mile scenic route from Front Royal, Va., to Cherokee, N. C. The year 1947 was the first full year of resumed construction on this parkway, which was started in 1934 as a Public Works project and temporarily stopped during the war years. Nearly all of the route is above 3,000 ft. elevation and in some sections rises to more than 5,000 ft. The parkway has presented a variety of interesting location problems because the terrain varies from gentle to very rugged, necessitating the use of numerous tunnels and bridges.

During 1947 the Public Roads Administration of the Federal Works Agency approved a 40,000-mile National System of Interstate Highways upon the recommendations of state highway departments. This vast road network will receive preferential treatment under provisions of the Federal Aid Highway Act of 1944. The system will serve directly 182 of the 199 U. S. cities having a population of 50,000 or over. In most states where projects on the system are planned, one-half of the cost of actual construction and up to one-third of the cost of the right-of-way will be financed by the Federal Government.

MECHANICAL ENGINEERING

By J. J. Jaklitsch, Jr.
The American Society of Mechanical Engineers

ATOMIC ENERGY

At midnight Dec. 31, 1946, control of the Manhattan Engineer Project became the full-time responsibility of a five-man civilian United States Atomic Energy Commission created by the Atomic Energy Act of 1946.

Atomic-energy research is to be conducted by a group of "national laboratories" operated under the direction of the Atomic Energy Commission. Five major centers of operation are to be established at New York, Santa Fe, Hanford, Oak Ridge, and Chicago. Each of the regional laboratories will direct contract research to be conducted at universities and each laboratory will be responsible for some phase of the atomic-research program. Brookhaven National Laboratory, Long Island, N. Y., and Argonne National Laboratory, Chicago, have thus far been approved as regional laboratories.

The status of atomic research centers now functioning or under construction are as follows:

Argonne National Laboratory, Chicago, oldest of the Commission's research centers, is operated by the University of Chicago with the participation of 29 midwestern universities and research institutions. Among its most important facilities are two experimental piles one of which is graphite-moderated and air cooled and the other is both moderated and cooled by heavy water. Another pile with unique characteristics is being built.

Clinton Laboratories, Oak Ridge, Tenn., formerly operated by the Monsanto Chemical Co., has been transferred to the University of Chicago. Here is located the largest experimental pile in the country. Further pile or reactor development is in progress. The newly organized Oak Ridge Institute for Nuclear Physics will provide sub-doctorate and graduate study for students from 14 universities in the southeastern part of the country. Clinton Laboratories are the source of most of the radioisotopes manufactured by the Commission. Production of these "tracers," invaluable aids in medicine, chemistry, biology, agriculture, and metallurgy, is an important peacetime activity of the Commission.

The Los Alamos Laboratory, N. M., although concentrating primarily upon the development of atomic weapons, is doing considerable work in fundamental nuclear physics. It has a low-power homogeneous nuclear chain reactor, or pile, utilizing enriched uranium in the form of a salt dissolved in water, and a "fast" pile, utilizing plutonium with no moderator.

The Hanford Engineer Works, Richland, Wash., is operated by the General Electric Co. It is one of the three original production facilities for the Manhattan Engineer District, and served as the plutonium production center.

The Brookhaven National Laboratory is now under construction on the site of Camp Upton, Patchogue, Long Island, N. Y. When completed it will be operated by nine northeastern universities. This Laboratory will have a low-power experimental nuclear chain reactor and other equipment especially suited to explore the interaction of nuclear particles. Training of advanced students in nuclear physics and allied fields will be an important function of the Laboratory.

Knolls Atomic Power Laboratory, Schenectady, N. Y., like Brookhaven, is in the early stages of construction. It will be operated by the General Electric Co. Its primary function will be the development of useful power from atomic energy for both the generation of electricity and the propulsion of ships. The laboratory will have extensive research facilities in the fields of chemistry, physics, metallurgy, and engineering.

Research facilities are also being erected near Miamisburg, O. and will be leased to the Monsanto Chemical Co. to carry on important research and development programs which were started during the war.

In addition, atomic energy activities are carried on in many other facilities, including the Radiation Laboratory of the University of California, Iowa State College, Ames, Ia., where government-owned research facilities are being expanded, the Battelle Memorial Institute, Cincinnati, Massachusetts Institute of Technology, and Columbia University.

In August 1947, shipments of radioisotopes, one of the most promising research tools in chemistry, biology, and medicine ever discovered, were exceeding 100 per month and almost 2,000 sales had been made. The majority of shipments went to hospitals and educational institutions.

An account of the atomic-powered ramjet conceived at Los Alamos was revealed by Dr. Richard P. Feynman of Cornell University. It would derive its heat energy from rods of a fissionable material such as uranium or plutonium.

The Navy Bureau of Ships has established an internal organization for the handling of nuclear matters, including studies of the possible application of nuclear power to ship propulsion.

Special photographic plates, known as "nuclear track" plates, developed by Eastman Kodak Co., are being used by scientists to picture actual atomic fission and to study highly charged nuclear particles.

AIRCRAFT, ROCKETS, AND GUIDED MISSILES

A wide variety of aircraft propulsion engines—gas turbines, jet engines, ramjets, and rockets—are in process of development. Also, the possibility of using atomic energy for powering aircraft is being investigated. Most of the research work now being done will probably be toward the development of extremely high-speed rockets, guided missiles, and military aircraft.

Projects in this area involve the investigation of the first man-carrying aircraft—the rocket-powered XS-1 and the turbojet-propelled Douglas D558—designed specifically to enter the transsonic speed range in level flight. To date the XS-1 has been limited to speeds of 0.8 Mach number or 8/10ths the speed of sound. On Aug. 25, 1947, the D558 established a new world-speed record of 650.6 mph. Outstanding among a variety of jet-propelled fighters and bombers announced during the year, is the successful test flight on Oct. 21, 1947, of the U. S. Air Forces first eight-jet bomber, the Northrop "Flying Wing." Also, on Nov. 24, 1947, the Air Forces' first swept-back jet fighter airplane, the North American XP-86, completed its initial test flight.

On Sept. 20, 1947, an experiment with automatic flight was conducted successfully when a pilotless Douglas C-54 landed at Brize Norton, England, after a completely automatic, 2400-mile transatlantic flight from Stephensville, Newfoundland. The C-54 made the return trip to Newfoundland also automatically, on Oct. 7, 1947.

Developments for equipment for all weather landing of airplanes continued to receive much attention in 1947, a year with many unfortunate aircraft accidents. Successful demonstrations were made with radar equipment for blind landings.

A new high in passenger comfort has been attained by the extensive use of large pressurized aircraft on the major airlines.

In co-operation with United Air Lines, Douglas carried out the first flights of a commercial airliner equipped with a heated wing under very severe icing conditions. Based on these flights and on previous data accumulated by the NACA and AAF, the CAA has recognized the use of heated wings instead of rubber deicers.

Kellett and McDonnell demonstrated new helicopters of much increased carrying capacity.

The advent of guided missiles has raised new problems in the field of aeronautics, such as the proper coordination of aerodynamic properties with the characteristics of automatic pilots for stabilization, the application of remote and automatic guiding and target-seeking devices, the development of suitable launching methods, and the determination of the dynamic and static structural requirements.

Typical of many of the guided missiles being developed is the "Tiamat," a 14-foot 600-lb rocket equipped with a seeking head, which reaches speeds of 600 mph. Another is a rocket named "Neptune," being built for test purposes for the U. S. Navy which, it is reported, will reach speeds of 8500 fps and will travel straight up to a height of 235 miles.

Aerodynamic research is also being directed toward airplane stability and control, aircraft engine installation, airplane propeller research, and rotating wing aircraft and spinning.

In addition a great deal of propulsion research, hydrodynamic research, structures research, and aircraft work is being carried on.

GAS TURBINES

Probably the outstanding event in the gas-turbine field during 1947 was the progress made in aviation toward the supersonic flight of aircraft, guided missiles, pilotless aircraft, and the like.

Progress in marine engineering has been made in the building of a gas turbine by the Elliott Company to go into a U. S. Maritime Commission ship in 1948. The British Admiralty has announced that the first gas-turbine watercraft has been taken to sea. It contains a 2500 shaft horsepower Metropolitan-Vickers gas turbine.

An outstanding event in the locomotive field was the announcement by the Santa Fe Railroad of its order of a 3750-hp gas-turbine locomotive from the Baldwin Locomotive Works, to be powered by an oil-burning gas turbine built by the Elliott Company. The Great Western Railway of England is now building two 2500-hp locomotives, one using a Brown-Boweri and one a Metropolitan-Vickers gas turbine. The railroad industry is also watching with interest the progress of the Locomotive Development Committees' plans for their coal-burning gas-turbine locomotives using both Elliott and Allis Chalmers gas turbines.

INTERNAL-COMBUSTION ENGINES

The general trend in the design of Diesel engines is to increase the operating speed in RPM, to apply supercharging such as exhaust-gas-driven superchargers, shaft-driven superchargers, or in the case of larger engines, motor-driven superchargers. The purpose is to increase the mean effective pressure per brake horsepower. With the higher mean effective pressure per brake horsepower resulting in a greater quantity of oil burned in the cylinders, more attention is being directed toward engine cooling.

The dual-fuel engine development is proceeding along the line of refinement, particularly in control. The complete control of both the pilot and the gas fuels may now be varied in any percentage from zero to 100 per cent gas with a small amount of pilot fuel for ignition purposes, to 50 per cent gas and 50 per cent fuel oil, or 100 per cent fuel oil.

With the exception of the dual-fuel engine, there is a definite trend toward a wider use of the solid injection system.

Fuel oil for Diesel engines is rising, due to an advance in crude oil prices. Freight rate increases and Federal and state taxes are also adding to the cost.

The trend in lubricating oil for Diesel and gas engines is definitely toward the inhibited types sold under various trade names such as Ring-free, etc. Very few straight mineral oils are available today.

It is interesting to note that the most powerful single-acting Diesel engine yet built in this country is being installed in a nitrate plant in Chile. With ten, 29 x 40-in. cylinders and a normal rating of 7100 hp, this engine drives a 500-kw 6600-volt, 3-phase, 60-cycle generator.

STEAM POWER

Between 16 and 20 million kw of new capacity must be added by 1951 to meet the post-war demands of the utility industry. Thus the record-breaking pace of adding 3.5 to 4 million kw each year for the next five years will launch one of the biggest construction programs in central station history.

Because of strikes, material shortages, and the like, construction in 1947 will fail to meet the growth by 300,000 to 500,000 kw. During 1948, however, new capacity is expected to exceed load growth.

Steam conditions are continuing on the upward trend. Many units are being built for pressures greater than 1200 psig with the most favored pressures ranging between 800 and 1000 psig.

Temperatures are reaching into the upper limits of present metallurgical possibilities with a concurrent slackening in the utilization of temperatures below 750 F. Three units designed for 1050 F have been reported. Temperatures of 900 to 950 F continue to be popular.

The largest turbine generators now being built are two 150,000 hkw units. The largest steam generators reported are two boilers of 1,000,000 lb per hr each.

Reflecting the effect of greater capacity flexibility on individual systems is the continued trend toward a single boiler per turbine designs. Furnace heat releases for all types of firing average about 22,000 Btu per hr per cu ft; for pulverized coal firing they average slightly less than 20,000 Btu per hr per cu ft. Of interest are two boilers reported to be fitted with cyclone burners similar to the experimental installation at the Calumet Station, of the Consolidated Edison Co.

Electric drive for auxiliaries continues with only a few exceptions where turbine drives were installed exclusively for boiler feed pumps.

The lowest heat rate so far realized with a steam cycle is expected to be realized with a 125,000-kw cross-compound steam-turbine generator for operation at 2000 psig, 1050 F initial temperature, and 1000 F reheat cycle, now being designed. This was reported at the ASME Annual Meeting, Dec. 1947.

Packaged steam boilers are now available in sizes ranging from 15 to 500 hp rating and for pressures from 15 to 200 psi, to burn light or heavy oil fuel, or in some cases, gas.

HYDRAULIC POWER

The year 1947 saw the resumption of a large number of new developments and additional units in existing plants which had been delayed during the war. For the first time in many years private installations exceeded those under government control. Construction work on these private generating plants was spread throughout the United States.

In addition to private industry, several government projects placed orders for generating equipment, among those being the Bureau of Reclamation, the Tennessee Valley Authority, and the U. S. Army Engineers.

The Idaho Power Company placed their Upper Salmon Development in operation during September. This plant contains two 11,800-hp turbines under 35 ft head. This company has under way four additional hydroelectric projects, the smallest of which contains one 12,000-hp unit.

Orders from foreign countries for hydroelectric equipment continued, units having been ordered from Norway, Chile, Brazil, and Finland, as well as several units for Mexico. In Russia, three replacement units in the Dnieper Plant were put into operation.

Activity in the field of large pumping equipment for use as an irrigation project and in conjunction with hydroelectric power developments continued. The Bureau of Reclamation placed orders for some large vertical pumping units. In South America, four pumping units were ordered with the capacity of 1,400 cu ft per sec under heads from 48 to 98 ft. All of these pumping units compared in physical dimensions with medium- and large-size hydroelectric units, some having casing inlet diameters as large as 13 ft. Lack of funds delayed the six 65,000-hp pumping units for the Coulee Dam irrigation district.

No new records as to capacity or efficiency of hydraulic turbines have been made, but many recent plant tests show turbine efficiencies from 93 to 94.5 per cent and over-all efficiencies from water to switchboard, including all turbine, generator, penstock, and intake losses, of 91 per cent or better.

RAILROADS

During 1947 the installation of Diesel-electric locomotives continued at an accelerated pace—especially in the United States. Extensive shipments of Diesel-electric locomotives to South America and Europe indicate the broadening efforts of foreign railroads to gain the improved service and efficient operation that have been experienced by many American railroads.

The American Locomotive Co. and General Electric Co. delivered new 70-ton 600-hp Diesel-electric locomotives to various domestic railroads. These units are designed for flexible operation and are being used extensively for branch-line service. The Baldwin Locomotive Works developed a new line of 1500-hp Diesel locomotives for various uses. A new line of 1500-hp Diesel road switchers were delivered to various domestic railroads by Alco-G. E.

Fairbanks-Morse delivered to several domestic railroads two new types of heavy-duty Diesels. The first is a 1500-hp unit designed for passenger, freight, and road-switching service, and may be equipped with a train-heating boiler. The second is reported to be the first four-axle Diesel-electric unit rated at 2000 hp and is being used for road-switching.

Several Diesel-electric locomotives designed for suburban passenger service by the Baldwin Locomotive Works were placed in operation by the Jersey Central Lines. The use of double-end operation cabs on each streamlined unit is featured.

Two single-cab motor-generator locomotives, said to be the world's largest, each a 360-ton 101-ft-long unit developing 5000 hp, were built for the Great Northern Railway for heavy mountain service, by the General Electric Co.

Seven 2-power locomotives were delivered to the Phelps-Dodge Corporation by Baldwin-Westinghouse. These locomotives, used in copper mines, can operate both under a trolley and on track not equipped with overhead construction.

Records of 29,000 miles per month per locomotive, established by several American steam locomotives during the year, indicate that technological improvement in steam locomotives coupled with better handling, servicing, and scheduling by the railroads have made significant strides.

A 4-6-2 steam locomotive rebuilt during the year by the Nashville, Chattanooga, and St. Louis Railway, included a completely new running gear and tender.

Four steam locomotives and cars for the Baltimore and Ohio Railroad's new "Cincinnatian" trains were built completely at the Mount Clare shops.

Five streamlined passenger steam locomotives for the Chesapeake and Ohio Railway were rebuilt at the company's Huntington shops. Originally having a 4-6-2 wheel arrangement, they were rebuilt into a 4-6-4 type. Only the tender and a part of the boiler were used in its reconstruction. The principal departure in design is the use of poppet valves.

An experimental coal-burning switching locomotive was rebuilt from an old 4-8-0 locomotive by the Norfolk and Western Railway in cooperation with the Standard Stoker Co. New features include mechanical lubrication, induced draft, and automatic control on the fan, stoker, dampers, and stand-by water-feed pump.

The latest application of the steam-turbine for locomotive use is exemplified by three non-condensing units which have been completed by Baldwin-Westinghouse for passenger service on the Chesapeake and Ohio Railway between Washington and Cincinnati. The arrangement of components is unusual in that the coal bunker is at the front, followed in succession by the operator's compartment, the boiler, and finally the turbine-generator power plant. Water is carried in a separate tender behind the locomotive.

There also have been some new and unusual developments in freight and passenger cars throughout the past year. Pullman-Standard designed and developed the P-S-1 box car. The principal feature is more parts standardization, which, it is hoped will speed box-car production and reduce costs. A new 40-ft 40-ton stainless-steel refrigerator car, built by the Consolidated Steel Company for the Atchison, Topeka & Santa Fe, was placed in experimental service. This car utilizes welded steel construction. Light weight is 57,200 lb. and load limit is 78,800 lb. Water ice is used as a refrigerant. Two aluminum refrigerator cars were placed in experimental service, one by Illinois Central and the other by Fruit Growers Express Co. The Illinois Central car is a 40-ton all-purpose car with a light weight of 51,500 lb. The Fruit Growers car was built for a 40-ton normal capacity and has a light weight of 50,600 lb.

The most significant departure from the conventional in passenger trains was the "Train of Tomorrow," built by Pullman-Standard for the General Motors Corporation. The train consists of a 2000-hp Diesel-electric locomotive, a coach, diner, sleeper, and a bar-observation car. A feature of the train is the "Astra Dome," a glass-enclosed observation roof on each car, rising about two feet above normal roof level. Many other new features adding to passenger comfort are incorporated in the train. Another adaptation of the "dome" idea is being applied by the Budd Manufacturing Co. to their "Vista-Dome" cars being delivered to the Burlington Lines.

The Locomotive Development Committee of Bituminous Coal Research, Inc., continued its activities in the development of coal-burning gas-turbine locomotives and is contemplating placing orders with two locomotive builders for pilot models. An order for an oil-burning gas-turbine locomotive for a domestic railroad is also being processed by one of the locomotive builders.

During the year, there were placed in service 23 all-welded boilers associated with rebuilt locomotives ranging from Pacific to Mallet types.

INSTRUMENTS

High-speed computing devices which appeared during the war are beginning to have an impact on regulating instruments, especially in connection with telemetering, which may approach that of the servomechanisms which matured in the Second World War. Components of aviation instruments are infiltrating the industrial instruments field, *e.g.*, the substitution of magnetic for electronic amplifiers and the increasing use of high-accuracy synchros for telemetering and telecontrolling, whether the receiver synchro be self- or servo-operated. Recent advances in the synchro art have raised their accuracy to a higher order.

Plans were completed for the establishment of one of the newest units of the National Bureau of Standards, the Institute of Numerical Analyses, at the University of California. A giant high-speed electronic computing machine is to be installed at the Institute.

A new instrument, the reflectogage, utilizing supersonics for thickness measurement and flaw detection, was announced.

An electronic instrument, a transmissometer, was developed for measuring atmosphere visibility and promises to be an important addition to airport safety equipment.

The mass spectrometer, one of the newer analytical instruments, has shown itself to be a remarkably useful apparatus in the analysis of gases and complex mixtures of gases.

A flow detector was developed for the continuous inspection of sheet material such as paper, mica, or plastics.

A pneumatic-type fatigue tester makes tremendously accelerated fatigue tests on not only test specimens of materials, but also on completed parts by vibrating them at resonant frequency at which lowest power is required, yet highest testing speed is realized.

A new torque meter was developed for the purpose of measuring torque transmitted by a rotating shaft at speeds of 35,000 rpm.

The hardness of microscopic grains within a piece of steel can now be measured by a new microhardness tester. The new tester can gage the hardness of a single steel grain at as many as three points within the breadth of a human hair.

Development of an electronic x-ray counter that accurately records x rays at millionth-of-a-second speed over a wide range of intensities was announced. An improved pyrometer for measuring the high-temperature high-velocity gas streams encountered in gas turbine and jet engines was developed. An electronic stop watch capable of measuring time intervals as brief as one thousandth of one millionth of a second was perfected.

Metal parts and stocks appearing alike but differing in composition are reported to be quickly and easily separated with a recently developed metals comparator.

Rocket exhaust flames that reach temperatures as high as 400 F can be measured with a newly developed instrument that passes a beam of light through the flame to a photoelectric cell.

MATERIALS

Widespread use of alloy steels containing nickel continued throughout the year. Engineering grades of triple alloy steels containing nickel, chromium, and molybdenum are also being widely employed. Low-alloy nickel-chromium-molybdenum cast steels are finding considerable use for parts operating at 950 to 1000 F.

The high volume of production of stainless steels continues. Based on the present outlook, production of 500,000 tons or more, is expected for 1947.

A high-temperature alloy, developed for jet-engine use, consisting of 20 per cent nickel, 21 chromium, 21 cobalt, and the remainder mostly iron, will endure a stress of 15,000 psi at 1500 F without excessive creep. Another alloy of 60 per cent chromium, 25 molybdenum, and 15 iron is even stronger at 1600 F but it is too difficult to produce commercially at present because of its high melting point.

A wide use of nickel and high nickel alloys such as Monel and Inconel, continue to be found in the power, chemical, and associated fields.

Corrosion, heat, and wear-resisting austenitic cast irons, known as Ni-Resist, are finding increased applications as cylinder liners and valve guides for internal combustion engines, in chemical equipment, heavy-duty commissary ranges, pipe, glass molds, and bolts.

Low-expansion wear-resistant nickel cast iron is in increasing demand for precision machine tool and instrument parts.

A new 33 per cent cobalt, 64 per cent iron, 1 per cent chromium alloy, said to carry more magnetism than any other alloy practical for use in motors and generators, and tough enough to withstand intense vibration, was developed.

Wartime research has resulted in the development of two processes for producing aluminum from kaolin clay, one a hydrochloric-acid extraction process, the other an alkaline extraction with a solution consisting of a mixture of sodium hydroxide and sodium chloride.

All-crystalline porcelains, capable of withstanding temperatures of 2000 F, were made from alumina, beryllia, zirconia, and thoria.

A concrete known as "Kaocast," which, it is claimed, can withstand temperatures as high as 3000 F, was developed.

A space saving insulation material, called "Santocel," is said to increase refrigeration and freezer capacity up to 60 per cent without adding to outside dimensions.

Silicones are becoming more important. Silicone oil which maintains a fairly uniform viscosity over extremely wide temperature limits will probably be useful in aircraft hydraulic systems as well as for lubrication of bearings, which are subjected to great temperature changes.

RUBBER

National legislation has authorized the continuation of the wartime industry controls until March 1, 1948, so that permanent legislation could be prepared which would establish a long-term policy on rubber as a national security measure. The consumption of natural and synthetic rubber continued at a high rate during 1947. Free commercial trading was resumed in natural rubber and increased quantities were available.

The development of a new chemical industry, capable of producing synthetic rubber at a rate of 1,000,000 tons per year was described.

Improved processes for the preparation of crude rubber were developed which employ continuous coagulation of hevea latex. A continuous process was developed for the isolation of GR-M from latex.

The use of rubber parts in springs for commercial vehicles increased. The use of butyl inner tubes is claimed to result in increased tire life. Tires containing wire-cord reinforcement were produced on a commercial scale and proved advantageous in off-the-road service. Experimental tires were built using glass-cord fabric as the reinforcement.

Injection-molding procedures were developed for the production of large parts, and an improved method devised for molding printing plates.

Advances in latex technology resulted in the development of a wide variety of new applications such as binders, and impregnants for fibrous materials, rubber linings, and coatings for the protection of metal equipment have expanded. Improvements in the properties of high-temperature resistant synthetic compositions have widened their use. A method has been developed for the precision machining of rubber parts by freezing them.

There is an increased interest in the testing of rubber products and a noticeable trend toward the experimental evaluation of finished products under simulated service conditions.

Wood cellulose and lignin were investigated as corresponding ingredients for rubber, and phenolic resins are reported to improve the oil and heat resistance of synthetic-rubber compositions and to increase their tensile strength and hardness.

PLASTICS

One of the most startling announcements during 1947 was that plastics were being used as drugs. It has long been known that excess acidity in the stomach was a direct cause of stomach ulcers. Since ion-exchange resins have been known for many years, it is perhaps only the commendable caution of physicians in not publishing results of medical research until thoroughly checked that has kept this announcement from publication until lately. An interesting part of this announcement is that the hydrochloric acid adsorbed by the resin in the stomach is released in the intestines to be returned to the body system.

Another announcement that revealed an unusual property of plastics was that when an electrical potential is applied to transparent plastics the strains created prior to dielectric breakdown can be viewed by polarized light in the same way as is possible to view strains created by mechanical forces.

Powder metallurgy techniques are being used to mold polytetrafluoroethylene, it was reported. By this new technique, finely powdered polytetrafluoroethylene is pressed into a compact in the same way as is used for making powdered metal compacts.

It was revealed that during the war, because of a shortage of solvents in England, polyvinyl chloride pastes were developed which contain no solvent.

A method of continuous compounding of thermosetting molding compounds was revealed in an article reporting on German practices.

Articles in both American and British publications indicate that steam preheating was independently developed in both countries. Results indicate that the properties of molded parts made from steam preheated preforms are about equivalent to parts made from dielectric preheated preforms in all but electrical properties which rules out steam preheating for electrical parts.

Although several companies announced new modifications of old materials such as Plexiglas Special UVA, a polymethyl methacrylate able to absorb ultraviolet light; Plexiglas V, a polymethyl methacrylate having a heat distortion temperature of 87 to 88 C; and Tenite III, a cellulose acetate propionate; only one entirely new material was offered to the trade. This new material was diallyl phenyl phosphonate. As with all monomers containing two allyl groups in the molecule, it polymerizes to form a thermoset resin and is capable of conferring this property on copolymers containing it in sufficient quantity. Other properties of the polymer of diallyl phenyl phosphonate which make it appear promising are its high index of refraction, its ability to wet glass fibers, and its flame resistance. The index of refraction is 1.57 so that as a transparent solid it is exceeded only by the flint glasses and polystyrene.

Silicone resins have been found to be excellent for sizing paper. Less than 0.1 per cent resin is necessary to give good results. It is added to the beater stock which must have a pH value below 7. Hard water decreases the sizing effect, but this can be overcome by the addition of a small amount of silicone oil emulsion. This small amount of size does not affect the strength properties.

FUELS

The general shortage of materials applied also to the fuel supply, which in turn contributed toward shortages of other items, notably coal cars, which were frequently in so short supply that mines could not be operated at capacity. A sizeable portion of United States coal production went to help revive European industry.

A gas which could be used in manufacturing synthetic liquid fuels has been produced successfully by setting fire to one section of an underground coal mine. The experiment is being conducted by the Bureau of Mines and the Alabama Power Co. at the Gorgas Mine near Jasper, Ala. The experiment did not encounter as many difficulties as had been expected, and demonstrated that, for certain logical formations, a gas of rather low heat value could be produced. Experiments will continue.

Distribution of natural gas from the Texas fields to the Eastern Seaboard was greatly increased by conversion of the wartime "Big-" and "Little-Inch" pipe lines, but the supply was still insufficient to meet the demands of the growing economy.

New discoveries of U. S. oil and gas reserves continued to fall short of unprecedented consumption rates. The consequent importance of coal as the basic energy source was emphasized by the announcement of a program to develop means for reproduction of synthetic liquid and gaseous fuels by the newly formed Pittsburgh-Consolidation Coal Co. in cooperation with Standard Oil Company of New

Jersey. This will supplement the work of the U. S. Bureau of Mines begun some time ago.

The importance of cheap oxygen to the production of high-heat-value gas was widely discussed. The cost of oxygen, though lower than ever before, was still too high for this purpose, but some plants under construction were expected by their builders to reduce the cost to an economic point.

Progress was made on pilot plants for the generation of electric power from the energy of controlled nuclear fission being developed by the U. S. Atomic Energy Commission, but many problems remained to be solved. It was generally conceded that many years would be required to make power in important quantities by this method.

Investigation of a systematic nature on pulverized coal applied to the gas turbine revealed for the first time that combustion of this fuel is unaffected by pressures up to seven atmospheres. This was reported at the ASME Annual Meeting, December 1947.

Study is continuing on the use of higher blast furnace top pressures in relation to improvement in distribution of ascending gases and more regular operation.

Coal washing practices are being continually studied and improved to effect removal of ash and sulphur from raw coal to produce lower sulphur coke with resulting improvement in blast-furnace operation and pig-iron quality. Blending of different grades of coals to provide suitable mixtures for use in by-product coke ovens is continuing.

Improved blast-furnace gas cleaning methods were studied and applied, notably the new disintegrator type of washer in which air aspirated by high-pressure water is thoroughly mixed with the dirty gas. The use of oxygen as an addition to the blast was under continuing study during 1947. Also, the use of oxygen as an aid to combustion and as a reagent for rapidly removing carbon from the open hearth bath continued to receive attention.

HEAT TRANSFER

The ASME Heat Transfer Division made the following contributions to the field of heat transfer during 1947: A program of basic research aimed at discovering the details of flow and heat transfer in complex industrial heat exchangers was initiated. A program of research has been proposed for the determination of the fundamental thermodynamic, heat transfer, and flow properties of important industrial gases. The subject of anti-icing of aircraft has been given further study. Designs of high-performance heat exchangers for application to gas turbines were proposed. Heat transfer and pressure drop for evaporating and condensing vapors were studied. The numerical solution of heat-transfer problems by the so-called "relaxation" method was investigated further.

MANUFACTURING TECHNIQUES

Under the impetus of the high speeds and heavy feeds of carbide cutting tools, the machine industry has turned to more rigid machines, a greater acceptance of fly-wheels on milling machines, and extended use of electronic controls.

The general trend in advanced design was demonstrated by the exhibits at the NTBA Tool Show held in Chicago. The same trend was emphasized by the subjects discussed at the ASTE meeting in Boston.

Additional impetus has been given to new design through increasing labor costs and the necessity of proportional increase in production by the development of specialized machines of a highly automatic nature. Down time still remains an important factor in machining costs, and new designs tend to loading and unloading without interruption of the machining cycle.

Relatively few new machines have been developed, the tendency being to embody progressive operations in a single machine. In many cases, operations that formerly required the transfer of parts from one machine to another are now performed on a single machine.

An increasing tendency toward weldments for the replacements of castings is in evidence. Where formerly welding design followed very closely the design of cast machine frames and beds, welding design has now become a specialized art. Through analysis and study, designs have been developed which, by proper placement of braces, produce the same rigidity and lack of vibration found in castings at a material saving in weight and in cost. The square corner, originally a feature of weldments, is giving way to roll edges at the point of weld with the result that these weldments have a smoothness of line equivalent to that of castings.

Contour turning is becoming of more importance in the machine industry. Rather intricate shapes, which formerly required a high degree of skill on the part of the operator, are now being performed by this means.

APPLIED MECHANICS

The significant developments in applied mechanics during 1947 were the continuous progress in connection with gas-turbine and jet-engine developments for ship, locomotive, and aircraft propulsion.

Preliminary plans have been completed for publication in January 1948, of the first issue of *Applied Mechanics Reviews,* a critical review journal of the world literature in applied mechanics. It will be published by The American Society of Mechanical Engineers with the cooperation of The Office of Naval Research, American Society of Civil Engineers, Institute of the Aeronautical Sciences, Society for Experimental Stress Analysis, Illinois Institute of Technology, The Engineering Foundation, American Institute of Physics, American Mathematical Society, The Institution of Mechanical Engineers, and The Engineering Institute of Canada.

REFRIGERATION AND AIR CONDITIONING

Because of the large existing backlog of orders for various types of equipment, development work by manufacturers has been greatly retarded as they have been required to devote their energies to reconversion to peacetime activities and filling orders for standard apparatus.

The impetus given to refrigeration through its use by the Armed Forces has been reflected in this backlog of orders. In addition, the manufacture of domestic refrigerators and air conditioning for comfort cooling was entirely prohibited during the war. This condition has been further accentuated by an acute shortage of material caused largely by strikes in the coal, steel, copper, electrical, and other industries.

Despite these handicaps, accompanied by spiraling costs of labor and material, the refrigeration industry has increased rapidly in size. The increased demand for frozen foods induced an unusually large number of manufacturers of food freezers to enter the field with the resultant number of mortalities. The necessity for transportation of frozen foods has resulted in greatly increased interest in and demand for refrigerated trucks, trailers, and freight cars. It is estimated that more than 500,000 low-temperature units will have been produced in the year 1947 for use in some phase of the frozen-food business.

The manufacturers of mechanical domestic refrigerators realized that the household unit of the future must contain a compartment for holding frozen foodstuffs. Practically every manufacturer will have a refrigerator with a freezer compartment. Several models are already on the market.

The reverse refrigeration cycle or the heat pump, while not new, has commanded considerable attention. This type of system permits heating as well as cooling. Efficiency is such as to be practical, and investigations have been spurred on by increasing costs of some common fuels. The potential field seems to be largely in residential and small commercial cooling and heating applications.

Air conditioning for comfort cooling prohibited during the war is now being provided by a large number of manufacturers by the familiar room coolers as well as remote systems. The development of the centrifugal type of compressors, particularly for large installations or, specifically, where each compressor is required to compress a large volume of refrigerant, has progressed rapidly, and several firms are now manufacturing this type of equipment.

A nation-wide field survey made among architects, pipe suppliers, heating contractors, and engineers, and an analysis of the sales records of wrought-iron radiant-heating pipe reveals that in 1947 there were upward of 10,000 radiant-heating installations in the United States. These include homes in all price ranges, and commercial, industrial, and institutional buildings.

A nine-story student apartment building under construction on the campus of the Georgia School of Technology, Atlanta, Ga. is to include one wing which will be heated by means of wrought-iron pipe coils embedded in the concrete floor slabs.

The Army Air Forces climatic hangar at Eglin Field, Fla., was placed in service during the year. The building provides a main test hangar 250 ft wide by 200 ft deep with overhead clearance of 60 ft in the central portion, and an engine test room 30 ft by 80 ft. The test hangar is designed to produce and maintain any desired temperature between minus 70 F and plus 165 F, and any desired humidity between 10 per cent and 95 per cent consistent with a maximum vapor pressure of 1.5 in. of mercury.

METALS ENGINEERING

Marked progress has been made in the development of instruments and control devices for continuous hot rolling, cold reduction, shearing, coating, finishing, and inspection equipment for flat-rolled steel products. Electronic devices of new design are being utilized in the control of these high-speed continuous operations. Speed of temper rolling was increased during 1947 by discarding manual measurement of extension during rolling for a continuous, electronically operated meter which compares the entering end speed of the strip with the difference between the entering and exit speeds to provide a direct measurement of the percentage of extension.

During 1947, the first detailed report on the stretch-reducing rolling process for the production of seamless pipe in small diameters was presented. This special technique is the nucleus of a large, new seamless pipe mill now under construction by a United States Steel Corporation subsidiary.

While no basically new discoveries were made in the field of heat-treatment, increased attention has been given to the application of existing knowledge to improving methods of specification for heat-treatable steels, using the hardenability concept as a basis for the new classification. The importance of hardenability has been recognized in establishing limits in the form of hardenability bands (so-called H bands) which in heat-treating problems are coming to be recognized as being more important than a rigid adherence to narrow chemical specifications.

The year 1947 saw continuing research carried out on the mechanical properties of steels, their response to heat-treatment, the problems of flow and fracture conditions and especially to behavior under multiaxial stresses.

The mechanics of sheet-metal forming have received more intense study by a new approach based on the fundamental material properties, especially in so far as they may involve flow under multiaxial stresses.

MATERIALS HANDLING

Work on the establishment of pallets standards with government agencies, transit associations, and industry in general is still progressing. The governing factors in connection with standardization of pallet sizes will be limitations established by transit media.

Some new developments in electric industrial trucks include a motorized boom attachment for use in railroad service shops and roundhouses; a clamp attachment for handling loose plate; a special handling device that can handle loads without pallets or skid platforms or using cardboard, fiberboard, or similar expendable materials as a platform. Another design in progress is for a clamp attachment which will automatically pull an unpalletized load onto the forks and push it off the forks in a storage area boxcar. Equally important has been the development of sparkproof and explosion-proof trucks for use in hazardous operations, or areas.

TEXTILE INDUSTRY

Progress during 1947 was made in the textile industry through a greater use of better dyes, drawing-in equipment, and development of synthetic fibers and filaments. In the woolen and worsted branch of the textile industry there has been a decidedly greater use of automatic looms and a new larger carding machine has been introduced.

In the cotton branch advances were made in opening and cleaning machinery, one-process drawing, and special reworking and revamping of spinning spindles.

Interesting developments in textile engineering during the year included the following: Revolutionary principles were applied in a Swiss weaving machine developed by Sulzer Bros., Winterthur, Switzerland. Basic principles of the automatic loom provide for introduction of the woof or filling yarn by means of a gripper which draws the filling thread from a single "cheese" of yarn. The small steel gripper obviates the necessity for bobbin winding and the use of a shuttle which rides on the yarn in other looms. The gripper never comes in contact with the warp yarns, since it is shot through a series of guides which are introduced between top and bottom sections of the warp when the shed is open.

A "Pneumafil" broken-end collector, for ring spinning frames was developed by Luwa Ltd., Zurich, Switzerland. The underclearers are eliminated and when an end breaks the clean drafted roving is conveyed into a filter chamber at one end of the frame.

The 2 for 1 twister, in which each spindle is driven by a 2-pole 3-phase vertical induction motor, rated at 40 watts, 12,000 rpm, 60 volts, and 200 cycles was introduced. Its present use is primarily for high-twist fine-denier rayon and nylon.

The continuous Hydrogen Peroxide Bleaching Range, using either the DuPont or Becco Process with cloth in rope form or open width and the continuous vat dyeing range, were further developed. Both ranges are said to be more economical than the conventional system when production is sufficient to keep them in fairly steady operation.

Peralta Rollers, for woolen cards were developed. These are of particular advantage in processing blends containing vegetable matter, hard threads, and skin. By their use a better yarn is produced and the number of ends down on ring frame is reduced by 20 to 70 per cent, depending upon the blend.

A pneumatic device for regulating and controlling the pressure applied to the rolls and packing boxes of a fulling mill was designed. This method of applying pressure suitable for the cloth being processed is reported to be superior to the conventional method of weights and springs.

STANDARDIZATION

Work on standardization and unification of screw threads, being carried on by the United States, Great Britain, and Canada, continued during the year. The American Standards Association Standards Council approved the initiation of a new project on Colors for Industrial Apparatus and Equipment. The following new

American Standards in the mechanical field were approved in 1947: Brass or Bronze Screwed Fittings, 125 lb, B 16—1947; Surface Roughness, Waviness, and Lay, B 46.1—1947; and Machine Pins, B 5.20—1947.

ELECTRICAL ENGINEERING

By Harry Sohon

Assistant Professor, University of Pennsylvania

MEDALS AND PRIZES

The Edison Medal was awarded to Lee de Forest at the winter meeting of the American Institute of Electrical Engineers in January 1947. The medal is a yearly award founded in 1904 by some friends and associates of Thomas A. Edison. The 1946 medal was presented to Mr. de Forest "for pioneering achievements in radio."

Dr. Vannevar Bush was awarded the Hoover Medal for 1946 by the four national engineering societies. Dr. Bush is noted for his work in the fields of education and research.

The Lamme Medal was presented to John B. MacNeill of the Westinghouse Electric Corporation "for his foresight, leadership, and creative contribution to the development of switching equipment." The award was made at the meeting of the American Institute of Electrical Engineers held at Montreal, June 11, 1947.

NEW PROJECTS AND PLANS

The Hartford Electric Light Company is starting a $12,000,000 program. This is to include the installation of a new 45,000-kw steam generating unit and rebuilding the South Meadow mercury-turbine unit. The changes at the South Meadow station are expected to increase the capacity by 10,000 kw and save $300,000 worth of fuel per year. The cost of the improvements on the mercury turbine unit is expected to be $2,000,000.

The Public Service Company of New Hampshire is planning to build a 40,000-kw, combination mercury-vapor and steam turbine generating plant at Portsmouth. There will be two 26,500-hp boilers supplying two 10,000-hp mercury turbines, and one 33,000-hp steam turbine. Each mercury turbine is to drive a 7,500-kw generator, and the steam turbine will drive a 25,000-kw generator. The mercury boiler is to operate at 128 pounds per square inch and at 962 degrees F. The exhaust mercury vapor from the mercury turbine will be condensed in a heat exchanger that generates steam at 643 pounds per square inch and 825 degrees F to drive the steam turbine. The condensed mercury will be used over again. The cost of this installation is expected to be about $5,000,000. The cost of the mercury alone will be in the neighborhood of $200,000.

The Potomac Electric Power Company is to build a $10,000,000 steam generating plant at Alexandria, Va. The capacity of the plant is to be 400,000 kw.

The Public Service Department of Burbank is entering upon an improvement plan, to cost $6,000,000, which will double its capacity. The load now carried is 14,000,000 kwhr monthly.

The Electric Power Board of Chattanooga is planning to expand and improve its system at a cost of $1,800,000. Improvements are to be made all along the line rather than on one or two large items.

Otter Tail Power Company at Fergus Falls, Minn. is raising its capacity. An investment of $3,000,000 is planned. Additional units are to be placed at several plants, including Devils Lake, Jamestown and Wahpeton, N. D., also Crookston, Hook Lake, Hallock, and Perham, Minn. The plan also includes the increase in the transmission voltage from 7,000 to 41,600.

The Commonwealth Edison Company is planning to add a 150,000-kw turbo-generator to its Fisk plant in Chicago. This will raise the capacity to 473,000 kw at a cost of $15,500,000. The new boiler will burn coal for fuel.

The Alabama Power Company is planning a new plant near Godsen. There will be two 120,000-kw units. The steam boilers will be able to use either coal or natural gas as fuel.

Dollas Power and Light Company is expecting to start a $5,000,000 expansion program. This includes a 40,000-kw steam driven unit at Mountain Creek.

Texas Electric Service Company is constructing a 25,000-kw steam plant in the Permain Basin. Natural gas is to be used as fuel. Condenser water is to be obtained from wells and will be cooled in towers and used over again.

The Southern California Edison Company is changing its frequency from 50 cycles to 60 cycles. The cost of making the change will be nearly $30,000,000 and the time required two years. In addition to converting the generating equipment to the new frequency, there is the problem of converting instruments and customer equipment as well. Even individual customer's washing machines must be adjusted to run at the new frequency.

MACHINES

A compact 400-cycle motor-generator set is now available. A 14-pole generator, running at 3440 rpm, generates 400 cycles and is rated at 1 kva. The driving unit is on the same shaft and is a 4-pole d-c motor. The overall efficiency is 50 per cent and regulation about 7 per cent at unity power factor. The unit is about two feet long by one foot in diameter. Its compact size makes it a very desirable power plant where calibration and development work is carried out on 400-cycle equipment.

An axial-air-gap motor has been made commercially practical. The principle is not new, however, the difficulties expected in construction have prevented manufacturers from attempting it. The new motor has about three times the fly-wheel effect, and where fly-wheels would naturally be used, such as punch presses, there is this advantage. The motor compares with conventional types except that friction and windage may be higher. The new motors are advantageous where space requirements are limited.

ROTARY CONVERTERS

The electrolytic zinc plant of the Anaconda Copper Mining Company at Great Falls, Montana was supplied with direct current by rotary converters. In order to increase the plant output it became necessary to obtain more d-c power. The least expensive solution to the problem was to place a grid controlled rectifier in parallel with each rotary. The operation of a rotary converter is entirely different from the operation of a rectifier. Therefore, it became necessary to provide controls to assure that the load be divided in the proper proportions. Furthermore, it was necessary to ensure that a fault in the rectifier would not communicate itself to the rotary and destroy the commutator before the operation of protective breakers. The rectifiers were provided with phase control so that there was a 25 per cent voltage adjustment possible. Circuit breakers were placed in each anode lead of the rectifiers and an interlock with the cathode breaker ensures that no rectifier is working with any anodes out of service. Current regulators are placed on each rectifier so that it carries a constant load and the rotary carries load variations. This set-up, where rotaries and rectifiers are working in parallel, has proved to be completely satisfactory. It indicates that the two devices can be used in parallel for many applications, as long as appropriate control equipment is provided.

TIDD TEST PROJECT

In order to increase economy of power transmission the tendency is to go to higher voltages. Lines operating at 220 kv have been in use for some time. To go to higher voltage will pose many new problems on the engineering profession. Recognizing that this is a problem for the profession rather than for individuals or individual companies the Tidd test project has been organized. The American Gas and Electric Service Corporation invited a number of manufacturers to cooperate in a research and test program on extra-high voltage power transmission. The Westinghouse Electric Corporation contributed the power transformers, lightning arresters, and measuring equipment. The American Bridge Company contributed the towers. The Ohio Brass Company and the Locke Insulator Corporation supplied the insulators and hardware. The conductors were supplied by the Aluminum Company of America, General Cable Corporation, and Anaconda Wire and Cable Company. The General Electric Company is supplying an oil circuit breaker and arrester. Tests are planned at voltages up to 500,000 volts line-to-line. Various types of insulators and conductors will be tested. Wire spacing and locations will be studied, and the operation of lightning arresters and circuit breakers at high-voltage will be studied, to see whether present design can be extended to cover the new range or whether an entirely new design is needed.

ELECTRONIC STABILIZER

An electronic stabilizer for power transmission has been developed. It has been known that a high-speed exciter will help keep an alternator from falling out of synchronism during the period of short circuit before the breakers open. This is a plan that can be used on the generator in the power plant, but is not applicable on the line. The equivalent of a high-speed exciter on the line is obtained by the new scheme. Grid-controlled rectifiers are used to draw exciting current through reactors. By controlling the current in the reactors the line voltage can be varied over a range so that the device can be used to actually hold the line voltage constant while the load varies. In case of a fault appearing on the line the rectifiers are cut out immediately and the necessary exciting current is available to keep the machines in step until the fault has been isolated by the breakers.

MAGNETIC AMPLIFIER

There are many control problems where amplifiers are necessary. Where the amplifier is used to actuate a contactor, an on-off type of control, a type of amplifier that may come into common use is a magnetic amplifier. Its operation depends on the variation of the incremental permeability of steel with the amount of constant polarizing flux. A small amount of direct current in the input coil changes the inductance of the a-c coil wound on the same core. This unbalances an a-c bridge and an alternating-current output is obtained. If this is rectified it can be fed into a second similar stage. By using three stages, very high amplification can be obtained. This is done without any thermionic tubes. The equipment consists of coils and dry disc rectifiers. Since there are no tubes there is no danger of burn-out which makes the amplifier much more reliable than otherwise. With no cathodes to heat, the efficiency of the amplifier is considerably increased over conventional types. The magnetic amplifier can be used for on-off operation and for rather slowly changing signals; it could not be used for speech and music in its present form.

ELECTRIC STEERING OF SHIPS

There has been a tendency to adopt electric steering of ships by foreign companies. The trend in this country has been a combination of electric-steam or electric-hydraulic systems. The fact that some foreign-built ships are operated by domestic firms and that foreign ships sometimes require servicing in domestic ports makes a knowledge of the electric system of interest to the engineer. A three-unit motor-generator set is used to supply power to the motor that actuates the rudder. In addition to the motor, there is a generator and exciter on the same shaft. The exciter armature is connected directly to the generator field, and the generator armature is connected directly to the rudder-actuating motor. All of the control takes place in the exciter field where currents and voltages are low. The steering wheel works a multipoint switch. This varies the excitation of the exciter. The rudder drives a followup that is a multipoint switch also. When the two multipoint switches are making contact on corresponding points there is no flux in the exciter field and no rudder motion. When the steering wheel is turned the rudder does not turn through its full range unless the wheel was turned to its extreme position. A small turn of the wheel produces only small rudder motion. The main advantage of this over domestic equivalents is that switching is done at low levels in the exciter field circuit instead of with high-current contactors in the rudder-motor circuit.

MEASUREMENTS

On Jan. 1, 1948 the "absolute" system of units became the standard for the electrical engineering profession. These units differ from the "international" units that preceded them by very small amounts, of the order of five parts in ten thousand for resistances. The units in the absolute system are derived from the magnitudes of the meter, kilogram, and second by accepted electromagnetic laws and the assumption that the permeability of vacuum is 10^{-7} in the MKS unrationalized system. The effect of the change to the new units will be apparent in only very few instances. The ordinary laboratory portable instrument correct to one quarter per cent would not be able to indicate the difference between the two systems.

When making oscillograph studies it frequently develops that there are not enough elements to indicate all of the quantities that one wishes to record. The following scheme has been suggested for indicating all three phase voltages with one element. The element is connected through a three-phase rectifier circuit so that it indicates the greatest of the three voltages. This gives enough of the voltage wave to indicate the magnitude and a fairly good approximation to the phase position of each wave. Of course, if the harmonic content is required, then it is necessary to record the entire wave, but where magnitude and phase position are the important quantities this scheme has been found very useful.

An electric alarm system has been made available that is actuated by any of 15 thermostats. These thermostats can be adjusted to sound the alarm when the temperature is raised above the set value by a fire, or the device instead can be used to indicate a freezing temperature. When any thermostat signals that it has been actuated, a green all-clear light is extinguished and a red danger signal is turned on, a horn sounds, and a pointer indicates which of the 15 thermostats is indicating trouble.

A method of metering electric power is being introduced where the power is supplied directly to the customer's transformer. The instrument transformers required to make the measurements on the line side are quite expensive; on the other hand, if the metering is done by conventional methods on the low-tension side of the transformer, the transformer losses are not included in the load reading. The new method consists of placing the meters on the low-tension side and compensating the circuit so that the transformer losses are included in the readings. A compensating voltage proportional to the load current is added to the measured voltage. This causes the meter to include in its reading the copper loss of the transformer bank. A compensating current proportional to the voltage is added to the current to make the meter include the iron loss in its reading. The correction for the copper loss is very accurate over wide values of current because the copper loss is a current-squared loss. The iron loss is not a true volt-squared loss and hence the correction is good for only a small range of voltages. However, in these circuits the voltage is confined to a rather small range in values and the correction is very satisfactory in practice.

DUST PRECIPITATOR

A dust precipitator for use in the home is now available. It is used in the input to a hot-air furnace or the input to an air-conditioning system. It has a capacity of 1,200 cubic feet per minute, and a demand of 50 watts. The principle is similar to that underlying similar devices of larger size. The air passes through an electrostatic field where the dust particles are charged. It then passes plates that are charged to attract the charged dust particles. These plates can be removed periodically and cleaned by washing with water.

High-speed x-ray photography has been developed so that exposure time can be reduced to one millionth of a second. This type of photography has a very valuable application in the study of exploding shells and similar applications. So that the x-rays will be intense enough to effect the photographic emulsion at this high speed an electron current as high as 1,000 amperes is required.

BETATRON

The betatron has been brought to a rather advanced stage of development. The present design uses a 130-ton magnet. The device is similar to a transformer with a ring-shaped vacuum tube for secondary. As the flux produced by the primary current varies, an electric field is produced that causes the electrons in the wire on the secondary of the conventional transformer to move along the wire. Because of the atoms of which the wire is composed, the current electrons do not move very fast. In the betatron the electrons are released in the tube, the changing flux causes the electrons to move around the ring, and with no atoms to interfere the electron speed is enormous. The electrons are accelerated during one quarter cycle of the 60-cycle magnetic field. The velocities attained by the electrons correspond to 10 to 100,000,000 volts. The power required to produce the magnetic field is about 200 kw, but since the exciting current is a quadrature current, the magnet requires the 200 kw at 24,000 kva; consequently, a 24,000-kva capacitor is used so that the betatron input is nearly a unity power factor.

WIRE DRAWING

The wire-drawing art has progressed almost to an extreme. Wire can be drawn so fine that it can not be seen. Tungsten wire has been drawn to 0.00018-inch in diameter. The wire is invisible to the unaided eye and consequently can not be gaged by the usual methods. The actual method used to determine the size of the wire is to weigh a known length. The wire has been made for use in a type of electronic tube.

RADIO

By G. L. Beers
RCA Victor Division, Radio Corporation of America

GENERAL

The year 1947 was an outstanding radio year in many respects. All previous radio receiver production records were broken both with respect to the number of instruments produced and their market value. Decisions reached by the International Telecommunications Conference at Atlantic City and the promulgation of a broadcasting code by the National Association of Broadcasters are expected to have a far reaching influence on radio in the future. Considerable progress was made toward the development of television into a firmly established broadcasting service, and the networking of an independent group of FM stations was undertaken.

THE FEDERAL COMMUNICATIONS COMMISSION

At the beginning of 1947, the Federal Communications Commission was composed of Charles R. Denny, Chairman; Paul A. Walker; Clifford J. Durr; Ewell K. Jett; Ray C. Wakefield; Rosel H. Hyde. In March, Commissioner E. M. Webster was appointed to fill the unexpired term of Paul A. Porter. Commissioner Wakefield's term of office expired July 1, 1947, and R. F. Jones was appointed in his place. Chairman Denny resigned Oct. 31, and President Truman designated Commissioner Paul A. Walker to act as Chairman until Denny's successor was chosen.

BROADCASTING APPLICATIONS

The unusually large number of applications for broadcasting facilities which burdened the Federal Communications Commission during 1946 continued through 1947. Applications for standard broadcasting stations, which operate during the day only, and for low-powered stations in communities not previously served, were granted in great number. The interference which these stations might cause to existing stations was not considered a serious problem. Applications for stations operating at night and capable of causing interference to existing stations were delayed because of the more extensive hearing procedures involved.

A station operating at night on a regional channel is usually required to employ a directional antenna, which will prevent destructive interference to other stations on this channel, and on adjacent channels. In order that the Commission may determine that destructive interference would not be caused to stations on a given frequency, an engineering study must be made. This study must include the existing stations and the new or modified facilities requested by the applicants. The services of two or more engineers for a week or ten days are required by each such engineering study. Applications were received so rapidly that each time a study was completed, the Commission found that one or more new applications had been filed, which invalidated the engineering work. Finally, a 30-day freeze order was issued by the Commission, during which both government and industry engineers cooperated to complete the engineering studies of applications then pending. As a result of this procedure, the Commission was able to reduce very materially the backlog of applications.

The hearings with respect to the use of cleared channels in the standard broadcast band continued through 1947, without a Commission decision with regard to policy. However, the engineering work involved in this hearing resulted in the adoption of several new engineering standards and in the modification of existing standards.

CONDITIONAL GRANTS FOR FM STATIONS

Applications for FM broadcasting stations were received in almost as great volume as for the standard broadcasting stations. The Commission was anxious to establish the postwar FM broadcasting system and, since it would not have time to make studies of all the FM applications received, adopted the procedure of issuing "conditional grants." A conditional grant was intended to indicate to the prospective licensee that the Commission had found it qualified to operate an FM station. Applicants receiving such grants could then proceed with their plans to construct the station with the knowledge that, when they met the appropriate engineering standards, a license would be granted. Many of the holders of conditional grants were permitted to operate with reduced power and temporary antenna systems in order to provide FM service pending the delivery of necessary equipment for a complete installation. By these expedients, the number of FM broadcasting stations operating at the end of 1947 was increased to more than 300.

COMMERCIAL OPERATION OF COLOR TELEVISION STATIONS

The hearing with respect to the commercial operation of color television stations in the frequency band from 480 to 920 mc, which began the latter part of 1946 was continued into the early part of 1947 and the Commission's decision was announced in the spring. In the decision, the Commission noted that there was serious question regarding the desirability of the standards proposed for this type of operation and that insufficient field testing had been done to prove that a satisfactory color television service could be rendered to the public.

Existing television stations improved their facilities during 1947, and a considerable number of new stations were installed. The rate at which applications for television stations were being filed was increasing rapidly at the end of 1947.

INTERNATIONAL TELECOMMUNICATIONS CONFERENCES

The International Telecommunications Conferences at Atlantic City, which began May 15, 1947, were ended Oct. 2. During this period, international agreements were concluded which have far-reaching significance to the communications industry. The new decisions are subject to ratification by the several participating governments and in general become effective Jan. 1, 1949. Three overlapping conferences were held during the sessions at Atlantic City, namely, the Radio Conference to revise the Radio Regulations of Cairo, 1937; Plenipotentiary Conference to revise the Madrid Convention of 1932, and High Frequency Broadcasting Conference to undertake a new project, the formulation of a frequency assignment plan for high frequency broadcasting stations. The last-named Conference was not finally adjourned but adopted an interim report to serve as a basis for its continuation in Mexico City in 1948. The Radio Conference completed all its work except the establishment of a new Frequency List, which will be drawn up during meetings to run over a period of more than a year at Geneva, beginning Jan. 1, 1948. The Plenipotentiary Conference completed its work and produced a new Telecommunications Convention. The Convention is completed by General Regulations, General Radio Regulations, and Internal Regulations, to which are annexed some 35 protocols, resolutions, and opinions, and the Telephone, Telegraph and Additional Radio Regulations, the last three to be revised at a conference in Paris in 1949.

REVISION OF THE FREQUENCY ALLOCATIONS TABLE

The Frequency Allocation Table was extended to cover the spectrum between 10 kc and 10,500 mc. Radical changes were made in the allocations to provide for the newer radio services such as the aeronautical service. Recognition had to be given to the requirements of many countries for the use of high frequencies for Tropical Broadcasting. With a great deal of difficulty, the United States succeeded in preserving the amateur bands with the exception of the band 1800 to 2000 kc and 50 kc of the amateur space in the 14 mc band, these losses being compensated for by a new band 21,000 to 21,450 kc for amateurs. As was expected, substantial losses were taken by the fixed services. With but very few exceptions, the frequency allocations which were proposed by the United States (and which in many instances are already in use as the basis for domestic allocations) were adopted. One of the major changes in the original plan, which the United States itself decided to propose, was the allocation of most of the 960 to 1660 mc band for an integrated aeronautical system for safety and control of aircraft in flight.

INTERNATIONAL FREQUENCY REGISTRATION BOARD

A new device for the more effective registration of frequencies and which looks to a more efficient use of the radio frequency spectrum was the creation of an International Frequency Registration Board to sit permanently at Geneva. It is composed of 11 members, who do not represent particular countries but are the custodians of an international public trust. The Board will adopt advisory opinions on frequency assignments and give technical guidance to all nations with a view to the utilization of the radio frequency spectrum on a sound engineering basis. Thus, for the first time, governments have relinquished some portion of their sovereign rights in bringing about, through international action, an orderly and economical assignment of frequencies.

PROVISIONAL FREQUENCY BOARD

Another major decision at Atlantic City was the unanimous agreement to revise the entire list of assignments for stations operating in the congested bands where harmful international interference exists. A Provisional Frequency Board was established to which all nations may send representatives, which will draw up a complete new plan for station assignments subject to approval at a Radio Administrative Conference to be held on the completion of the work within approximately one and one-half to two years. The United States has a vital interest in the work of this Board, and, without such a plan, a most serious impairment of its services, due primarily to the loss of frequency space in the fixed bands, would result.

ADMINISTRATIVE COUNCIL

An Administrative Council, composed of 18 members, each representing a particular country, will meet periodically to provide better administration for the various boards and committees of the Union and to handle a limited number of emergency matters. The first meeting of the Board, expected to be of three or four weeks duration, was held in January 1948.

MILITARY RADIO EQUIPMENT

Government support of radio research and development during 1947 continued at a very substantial rate. Shoran, the most precise method of air navigation presently available, was further improved in accuracy. Figures published by the United States Army Air Force, which employs Shoran equipment for long distance triangulation surveying, aerial photography and other purposes, indicated consistent accuracies of about 30 feet at 300 miles.

Several air tragedies during the year emphasized the need for a comprehensive system of air navigation and traffic control. The development of systems such as Navar, Lanac, and Teleran was expedited to meet this need. Teleran, a system which combines television and radar to give the pilot a pictorial presentation of navigational conditions, was developed to the point where flight tests were started.

An event which received widespread publicity was the completely automatic 2,400-mile trans-Atlantic flight of a U. S. Air Force C-54 from Stephensville, Newfoundland to Brise Norton, 40 miles west of London, England. The plane carried an emergency crew of nine, but no human hand touched the controls on the entire flight. The automatic flight was accomplished by self-controlled, pre-set mechanisms.

RADIO RECEIVERS

Based on actual production figures for the first 11 months, the total industry production of AM, FM, auto and television receivers is estimated at 17,300,000 units. Television and FM receivers accounted for 1,140,000 and 170,000 units, respectively. A limited supply of cabinets continued to restrict the production of console type receivers. The number of television receivers produced rose sharply in the fourth quarter. Receiving tube production for 1947 is estimated as 185,000,000 tubes. In addition, approximately 3,100,000 tubes of the non-receiving types were produced.

AMPLITUDE MODULATION (AM) BROADCASTING

During 1947, the Federal Communications Commission licensed many new low powered AM broadcasting stations. At the end of the year, over 1,900 stations were either licensed or authorized.

The 25th Annual Convention of the National Association of Broadcasters (NAB) was held in Atlantic City during the week of Sept. 22. A code of standards of practice for the broadcasting industry was submitted to the convention. The code contained sections regulating broadcasts, involving such subjects as religion, profanity, race, marriage, crime, and insobriety. Limitations were placed on the time which could be devoted to advertising in any given program period. Considerable opposition to certain features of the code developed toward the end of the year among independent broadcasters, and the possibility of its early acceptance remained in doubt.

FREQUENCY MODULATION (FM) BROADCASTING

At the end of the year, the Federal Communications Commission had licensed or authorized over 1,000 FM stations. Early in the year, the Commission found it necessary to modify the allocation plan for FM stations so that in any particular locality the assigned frequencies were separated by at least 800 kc.

Considerable progress was made during the year in meeting the demand for transmitting equipment. Development work on 50 kw transmitters was completed, and units providing this power output were being manufactured.

The Continental Network, which was organized as an independent FM network at the end of the year, included over 30 FM stations. Many of these stations obtained the network programs by receiving the signals broadcast by other FM stations. Some, however, were interconnected through the use of lines supplied by the Telephone Company.

The American Federation of Musicians (Petrillo) continued to prohibit the duplication by FM stations of programs carried by associated AM stations. AFM members were also prohibited from playing for the Continental FM Network although they were permitted to perform for individual stations.

A number of FM tuners, in the price range between $20 and $30, were placed on the market. These tuners were designed for use with standard AM broadcast receivers. Several of these devices employed the super-regenerative principle.

TELEVISION BROADCASTING

Deliveries of television transmitters by manufacturers during 1947 made it possible for a considerable number of new stations to institute a program service. At the end of the year, 18 stations were operating with commercial licenses, and the Federal Communications Commission had either licensed or authorized over 70 stations. Applications for television stations were being filed with the FCC at a rapidly increasing rate, and the total at the end of December exceeded 70. In a number of localities, the available television channels were already exhausted. Hearings were scheduled in some of these localities to determine the successful applicants.

Further progress was made during the year in providing facilities for television networks. The Telephone Company, at the end of the year, had installed over 5,000 route miles of coaxial cable. One of the coaxial circuits extended from Florida to the West Coast. This circuit, however, did not include terminal facilities suitable for television programs.

The Telephone Company's radio relay system between New York and Boston was completed and formally demonstrated in November. This system employs seven repeater stations to cover a distance of approximately 220 miles. Frequencies in the vicinity of 4,000 megacycles are employed. The highly directional antennas used at each repeater station are of the horn type with 10-foot square apertures. Each antenna utilizes a metal lens. The completion of this radio relay system make facilities available for transmitting television programs in either direction between Boston and Washington. The coaxial cable between New York and Washington was used extensively during the year for the transmission of television programs.

The General Electric Company completed the installation of a television relay system between New York and Schenectady. Another system was installed by Station WBKB between South Bend and Chicago and used to broadcast the Notre Dame football games. Both systems operated on frequencies in the region of 2,000 megacycles.

TELEVISION RECEIVERS

Although only two or three of the leading radio receiver manufacturers were producing television receivers during a substantial part of 1947, it is estimated that a total of over 170,000 receivers were produced. The number of manufacturers entering the television receiver field rose sharply near the end of the year.

The majority of the receivers produced in 1947 were table models employing 10″ directly viewed picture tubes. Other receivers of the directly viewed type utilized tubes ranging in diameter from 7″ to 20″. AM and FM receivers were included in some television consoles and some models also contained a phonograph.

During the year, two home television receivers of the projection type were introduced, employing reflective optics and special viewing screens. Although one receiver employed a reflection-type screen, while a translucent screen was used in the other, both provided a directivity pattern which resulted in a substantial brightness gain. Directional screens of these types have an additional advantage in that they minimize the detrimental effects of room lighting on picture contrast. These projection type receivers were capable of producing 15″ by 20″ pictures having highlight brightnesses in the range between 30 and 100 foot lamberts.

TELEVISION PROGRAMS

Sporting events constituted one of the major sources of television program material. Substantially every type of amateur or professional sports contest was televised at some time during the year. The television audiences in New York and Philadelphia were able to see almost all the major league baseball games played in their respective localities. The world series games provided one of the year's major television attractions and were broadcast by a television network including stations in Schenectady, N. Y., New York City, Philadelphia, and Washington. Football games and boxing were likewise used extensively as television program material.

A 1947 television feature was the first broadcast from the White House of the President speaking to the nation. The availability of television broadcasting facilities along the eastern seaboard was one of the major factors in the selection of Philadelphia as the site for both the 1948 Republican and Democratic National Conventions.

Considerable effort was expended by television broadcasters in the development of new program techniques. Quiz programs of the audience participation type were used to some extent. A number of excellent dramatic presentations were broadcast.

As the size of the television audience increased with the installation of large numbers of new receivers, an increasing interest in television developed on the part of advertising agencies and other commercial organizations. Audience surveys were made and demonstrated conclusively the effectiveness of television as an advertising medium. At the end of the year a large number of commercial organizations were sponsoring television programs. Several television stations had established commercial rates for their broadcasts. These rates were adjusted upward at intervals to correspond to a substantial increase in the television audience.

COLOR TELEVISION

Development work on color television systems continued in the laboratory. On April 30th a demonstration of the RCA all-electronic color television system was given at the Franklin Institute in Philadelphia. A 7.5′ by 10′ color picture was projected by three kinescopes producing separate red, green and blue images. The three images were superimposed on the screen to form a single image in natural color.

TECHNICAL PROGRESS IN SOUND EQUIPMENT

By W. J. Morlock
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GENERAL

Sound Equipment appeared on the market in sufficient quantity during the year 1947 to ease the critical consumer demand. Much of this equipment was of improved styling and new design.

The trend was toward better quality and higher price. The individual units, commonly termed "Package Items," were the first to come into the market in volume. Much of this equipment was made by manufacturers who were not in this business before the war. Owing to the extreme demand for equipment, the new manufacturers' items encountered less sales resistance than would have been normally encountered in the pre-war period.

It was significant to note that the circuits and circuit components were very similar for items in the same price and power output class. This was owing in part to the standardization of tube types by the tube manufacturers during the war. This standardization resulted in the equipment manufacturers utilizing tube complements which showed a high degree of similarity. The use of feed-back and inverter stages in amplifiers was practically universal. The amplifier performance characteristics showed a marked improvement as to frequency response, distortion, and stability when used with varying load impedances. This improvement was due primarily to the use of feed-back and improvement in transformer characteristics.

Most component manufacturers had the usual amount of difficulty in changing their production from Government type of components to the Commercial type. This resulted, in some cases, in an abnormal amount of component field failures. Production during the latter part of 1947 showed this condition to be under control and the field failures reducing to a normal figure.

USE OF PRINTED CIRCUITS

A significant trend, which may affect sound equipment amplifier designs, has been the use of printed circuits. These circuits partially eliminate the use of wire and soldered connections by substituting lines printed or painted with conducting ink or paint on an insulated base. In addition, resistors and small capacitors are formed directly on the insulated base by the use of special resistance paints and insulating coatings. This practice has become prevalent in the hearing-aid field, and there is a trend toward it being used on the larger amplifiers. Adoption of this idea in "Package Units" would reduce the size of the equipment now being sold.

SOUND REINFORCING

The "Two-Way" type of speaker, which has had wide usage in the motion picture equipment field, is becoming more prevalent in the high quality sound reinforcing systems. Specially designed units for sound reinforcing are now being manufactured by many of the sound equipment companies.

The most significant development in the field of sound recording was the widespread use of magnetic recording. Wire and tape recorders reached the market in sufficient volume to establish a consumer reaction. This reaction has been extremely favorable, and much development work is now being done to further improve the quality.

The most promising developments have been in improvements in the magnetic paper and plastic tapes being used. The quality of sound being obtained from the tapes is now approaching that obtained from the photographic sound on film systems.

SOUND AMPLIFYING SYSTEMS

The sale of "Custom-Built" sound systems is being superseded by "Packaged Sound Systems" wherever practicable. These systems usually are equipped with adequate controls to enable the systems to be adapted into any type of application without appreciable alterations. The school and hospital systems feature radio chassis capable of Frequency Modulation reception so as to be able to adequately receive the large number of new Frequency Modulated transmitters which are going on the air. Many hotels are installing sound systems of a high quality type, in preference to the individual radio set in each room. These systems show no major changes in operating principles but feature better response and lower distortion, which is a result of improvements made in amplifiers and loudspeakers. The use of emergency paging in hotel systems has become practically universal in order properly to direct the guests in case of fire or other types of emergency conditions. Some systems provide for individual room paging, but the majority of installations rely on the system of "Zoning" the floors for emergency announcements.

The demand for industrial type systems did not reach its expected proportions owing to the curtailment of new building. It is expected that this demand will be increasing as the new building programs get under way.

16 MM SOUND MOTION PICTURE PROJECTORS

The primary demand for 16 MM Sound Projection equipment has been in the educational field. Large quantities of this equipment were produced and sold during 1947, and the indications are that an item of this type will become a necessary teaching aid in all modern educational institutions.

No radical changes were apparent in the equipments being sold. Slight improvements were noted in screen illumination and picture resolution, which were owing to improvements in the optical systems. Most of this improvement was accomplished by the use of non-reflective coatings on the lens. The anticipated lightweight single case units did not appear on the market to any great extent, but the indications are that there will be new lightweight models of a simplified design appearing on the market during 1948.

Demonstrations of the use of a magnetic sound track on 16 MM film were made by the Armour Research Foundation. These demonstrations clearly indicated the feasibility of sound reproduction at standard film speeds from a magnetic track instead of by the optical method now being used. Film of this type will permit the amateur photographer to add his own narration to the film which he has exposed. While the technique for this application has been worked out, no film is commercially available. There are good indications that film with a magnetic track will become available during 1948, along with adapter kits for converting the standard sound projectors to magnetic reproduction. This method would permit the user to record or erase sound narration from the film as it is being projected.

SOUND MOTION PICTURE EQUIPMENT

No significant technical advances were noted in the 35 MM Sound Motion Picture Reproducing Equipment. Slight improvements in the efficiency of the loudspeaker systems were made. These improvements were due primarily to the use of improved magnet materials and improvements in design techniques. There is a definite trend toward reducing the size and complicity of the amplification equipment. This is accomplished by utilizing the space and materials in a more efficient manner.

One manufacturer demonstrated large picture television projection to the Motion Picture Industry. This demonstration showed the feasibility of large picture projection using reflection optics (Schmidt). The light intensity and resolution was much lower than that normally obtained in regular film projection, but it may be that this deficiency will be tolerated in order to gain the advantage of instantaneous projection of the actual event. It is not anticipated that this type of projection will have any appreciable effect on the motion picture industry for a few years.

The recent demonstrations of a high speed film developing and fixing equipment indicated that there may be a good possibility that the method of exposing film to a high resolution television tube and quickly processing it in a continuous manner for projection in conventional projectors may become an important factor in the projection of televised events to motion picture audiences.

The use of magnetic sound track on 35 MM film has been successfully demonstrated by the Armour Research Foundation. The quality was comparable to the present photographic process. The applying of this technique to Motion Picture film is governed primarily by the equipment obsolescence factor and the economies involved. This type of sound recording ~~is~~ being carefully analyzed and experimental recording channels are being set up in order properly to evaluate the over-all performance.

BROADCAST AUDIO STUDIO EQUIPMENT

The advent of television, frequency modulation, and an increase in the number of standard broadcast stations created a demand for studio equipment which continued to remain high during 1947 in spite of the failure of the building construction program to remain on schedule.

The studio equipment is becoming more complex as the scope of the broadcaster is extended into television and frequency modulation stations. The consoles being purchased are designed to include provisions for picture as well as sound monitoring. The amplifiers being used are, in general, the "Plug In" type and feature wider range and lower distortion characteristics. These features are particularly important when frequency modulation is used, as the quality and range of this type of broadcast must be kept to the highest possible standards.

The effect of the requirements for wide range has extended to each item in the channel. Wide range microphones, having improved characteristics, have been especially designed to extend the range into the 30 to 15,000 cycle region. Instantaneous recorders for transcription work are being developed to have noise and response characteristics to meet these requirements.

As a result of the demand for high quality transcription equipment, there has been a trend in the broadcasting field toward the use of magnetic tape recorders, and many manufacturers are concentrating their development and design activities toward producing magnetic recording and reproducing equipment especially designed for this application. The plastic and paper base magnetic tape is especially favored as it can easily be edited and spliced. In addition, it has exhibited low noise and response characteristics which are especially desirable. It would appear that magnetic recorders and reproducers will become a standard piece of broadcast studio equipment.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

By James L. Bates
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GENERAL

In the fields of Naval Architecture and Marine Engineering, the year 1947 was one of adjustment to the impacts of various post-war forces as well as of assimilating some of the lessons which the performances of many war-built ships have made available.

While it can not be said that there has been a "return to normalcy" since 1945, there has unquestionably been, here in America, a widespread movement away from the war physicologic of cooperative endeavor. This has developed in a number of disputes between labor and management. These, in turn, have reacted in shortages in materials and equipment. Management has shut down entirely or partially many war-built plants, and much wartime labor has returned to pre-war occupations outside shipbuilding where the possibilities seemed more attractive.

Ship operators have taken advantage of the opportunity to purchase war-built freighter tonnage reconverted under the provisions of the 1946 Ship Sales Act. In this way, there has been provided temporary occupation for both shipyards and labor. However, even in this field, strikes and materials shortage have delayed work and increased costs.

Political policies, both foreign and domestic, have reacted unfavorably upon shipbuilding. These have developed programs of foreign and domestic economy simultaneously. Therefore, budgetary and Congressional allotments for American merchant shipping have been drastically curtailed.

RESEARCH PROJECTS

During the war, there were initiated many research projects of broad scope. There was also much experimental and progressive full scale work put into service. For example, the Navy controllable pitch propeller, the Kort nozzle application to large seagoing tugs, and the all welded construction of large merchant ships. These and many other appliances and methods were utilized under emergency conditions in the effort to speed up production and to secure greater efficiency in an all-out effort.

With the cessation of actual hostilities there remained many research projects requiring completion in order not to render valueless the work already done. Also, there were masses of accumulated performance data relatively valueless without proper arrangement and study.

In addition to such organizations as the Navy Department, the Maritime Commission, the American Bureau of Shipping, and the United States Coast Guard, there are many committees organized to prosecute certain research projects. These various agencies, some separately and others in combination, have labored to prosecute projects under way, to analyze available data, and to outline further procedure when deemed desirable. The year 1947 has seen the completion of some old projects and the initiation of several new ones.

The following are listed as among the factors which have been particularly influential in Naval Architecture and Marine Engineering in the year 1947: continued experiment relating to and study of the large welded ship; continued study of and experiment with the loading and unloading of cargo; the use of aluminum in ship hull structure; development of the marine gas turbine and its installation aboard ship; the controllable pitch propeller for use in large vessels; reconversion of war-built vessels to peacetime purposes; new construction completed; preparations for the International Convention for the Safety of Life at Sea; the report of the President's Advisory Committee on the Merchant Marine; and some trends which were apparent during the year.

EXPERIMENT AND STUDY RELATING TO THE LARGE WELDED SHIP

During the war, there was formed a Committee on Ship Structure, composed of representatives of the U. S. Navy Department, the U. S. Maritime Commission, the American Bureau of Shipping, and the U. S. Coast Guard. This Committee published a report, dated July 15, 1946, which presented the data with conclusions based on a large number of experiments (about 45) intended to throw light upon the multi-axial stresses developed in ship's structures, upon the suitability of the steels used in the hulls of wartime ships, upon the effect of welding sequences, upon structural discontinuities, upon various types of hatch corners, upon scale effect and other pertinent factors.

Further investigations upon temperature effects, various qualities of steel, multi axial effects, and the like are now being processed under the supervision of a sub-committee composed of representatives of the same four agencies.

The American Bureau of Shipping has continued its study of the Liberty ship fractures and now leans toward the conclusion that the poorly designed hatch corners in the original Liberty vessel were more responsible for initiating major failures than at first supposed.

During the year, the T2 type tankers (vessels having a length somewhat in excess of 500 feet) showed sufficient serious fractures to necessitate serious study.

Certain private operators introduced crack stoppers in the form of slots covered by seam straps extending throughout the middle half length of the ship. After a conference at which representatives of the American Bureau of Shipping, the Coast Guard, the Maritime Commission, and various operating companies were present, the Maritime Commission authorized a program of crack stopper fittings to its fleet of T2 tankers as the ships could be made available. It should be noted that the crack stopper referred to does not strengthen the hull. It merely provides a line of relative structural discontinuity which it is believed should stop the extension of a crack if one should start.

STUDY AND EXPERIMENT IN THE LOADING AND UNLOADING OF CARGO

Studies of voyage reports indicated that stevedoring expenses amounted to between one-third and one-half of the operating charges of a C-type cargo vessel. It was obvious that here was an item worthy of the most serious consideration. Special types of ship had been designed and operated successfully. These ships generally fell into two classes—bulk carriers and container carriers. The first class are strictly limited in respect to the type of cargo which can be handled and the second as to the type of container which may be used. Neither type thus far has been satisfactorily adapted to package cargo, particularly where several ports of call are involved. The Maritime Commission undertook to make special studies of the problem in cooperation with several outside interests.

One of the studies related to the use of side ports, side ports being essential where the holds to be served are underneath several tiers of superstructure. There has resulted a transversely operating carriage which carries a horizontal boom capable of extension either to port or starboard through the side port. This apparatus has successfully passed its initial tests and should give valuable service.

When ordinary size deck hatches are served with overhead gear there usually results a time-expending operation consisting of the movement of the cargo from the hatch square to the corners of the hold. It is felt that the design of the ship, with as large hatch area as possible (approaching Great Lakes practice), will eliminate this element entirely or at least decrease it. Designs have been prepared embodying this feature.

The Maritime Commission assisted the inventor in developing a special type of overhead transverse trolley with the necessary tracks. This apparatus was installed and operated in service with partial success. With the experience thus gained there has been constructed an improved unit which has been set up on land and is now partially through its tests.

This matter of cargo handling represents a continuing project which is worthy of continued study leading to further improvements of method and increased economy of operation.

USE OF ALUMINUM IN SHIP HULL STRUCTURE

In the past, this material has been successfully used in small deck houses, for ship's boats, ship's masts, and the like. There has just been completed at the Alameda plant of the Bethlehem Shipbuilding Company a ship which carries a long aluminum superstructure. This ship was originally intended for use as a troop transport. When it was decided to complete her for the carriage of passengers, aluminum was adopted for the upper tier of superstructure in order to minimize the amount of permanent ballast required.

Naval architects, in the past, have had to rely solely on the service performance of certain vessels for guidance as to what liberties can be taken in new designs. While this reliance upon the past has served and continues to serve a useful purpose, progress towards increasing the structural efficiency of the passenger ship by this means only will be necessarily slow. The reason for this is that a ship structure presents too many variable and complex factors, none of which has been made the subject of a scientific appraisal. In other words, no systematic collection of data is available on the structural behavior of a multi-deck hull under controlled and measurable loading conditions. One has only to point to the two diametrically opposite philosophies with respect to the need of expansion joints in a long deck house passenger ship to appreciate the wide gap that exists between respected authorities.

As far back as 1939 the necessity for an orderly program of studies and experimentation in the field of ship structure was recognized. It was reasoned that the collection of engineering data would enable the designer to understand more fully the performance of the structure, and would arm him with the necessary knowledge to permit him to depart from the "beaten path." For this purpose, extensive laboratory studies were conducted by the Aluminum Company of America. The data obtained from these studies clarified many points which, at that time, could only be conjectured. The laboratory test specimen, however, though designed to simulate the structure of a passenger ship, could not be made absolutely to scale and satisfy all the requirements of the theory of similitude. The model departed slightly from the prototype; hence it yielded data which had qualitative value only. The laboratory study, therefore, could not answer the specific question: How effective is the superstructure of the P-2 class of ships? The question could only be answered through a full scale structural test on the ship itself.

The fact has been established that aluminum, judiciously placed, can improve the stress condition at several highly stressed regions of the hull. It, however, introduces two additional features worth consideration: corrosion and thermal stresses. The matter of corrosion seems to have been adequately considered by providing actual separation between steel and aluminum by means of a spacer impregnated with zinc chromate. The matter of thermal stress, however, can not be solved so easily. The difference in the thermal coefficient of expansion of the two materials brings about a condition of restraint which develops a thermal stress in the aluminum of unknown intensity. These stresses have been the source of some concern, and it was considered desirable to determine their intensity on the actual ship.

Such was the background that led to the planning of the structural test on the *President Wilson.* This project had two broad objectives: to confirm the basic design assumptions that governed the structural design of the vessel, and to determine if there are apparent any points of weakness which might result in some structural failure in service.

This test was designed to appraise the interaction between the aluminum superstructure, the steel deck house, and the main hull girder. Strains and deflections were recorded for five separate loading conditions which induced varying bending moments on the hull structure. A temperature study was also made to establish basic data on the behavior of the aluminum structure. Important contributions to the field of structural design of large passenger vessels are indicated by the test.

DEVELOPMENT OF THE MARINE GAS TURBINE AND ITS INSTALLATION

The first marine gas turbine contracted for by the Maritime Commission is now nearing completion. The low pressure compressor was given the final running test at the plant of the vendor during September 1947. The high pressure compressor was put on test late in November. The low pressure turbine was tested in January 1948. The complete plant should be assembled and tested in April 1948.

The installation of a gas turbine in a merchant vessel is being made to further the American Merchant Marine by adequately testing at sea under regular operation a new and very promising prime mover. That this is quite necessary to maintain a competitive position is indicated by the fact that the British are installing a gas turbine for the same purpose. There are also indications that the Swedish are proceeding along the same line. Obviously, it is essential to continue the start in this field if the American Merchant Marine is to compete.

This installation is to be made in a Liberty Collier for reasons outlined later, but it is of interest and will be closely followed by the whole shipping industry. No American operator could afford to pay the development costs for such an installation; consequently, when this project was considered in 1944, the Maritime Commission decided to make the installation.

The gas turbine is not an untried or experimental device, and it is confidently expected to operate efficiently and satisfactorily. However, as in the case of any new development, there may be minor components and accessories which are faulty or misapplied which will require correction.

The Commission's primary function in this installation, then, is to make such modifications to the stationary gas turbines as past experience indicates is necessary for marine use, place the vessel in commercial service, continuously check the operation and make further modification, if necessary, until the unit is suitable for marine service. To accomplish this a short run between two easily reached ports of call, preferably on the East Coast, is required. Further, to help recapture part of the development cost, the installation should be such that it will enhance the value of the vessel selected, and the vessel should be a type that will be retained in continuous service.

CONTROLLABLE PITCH PROPELLER FOR USE IN LARGE VESSELS

During the war, the Navy used with great success a controllable pitch propeller on light displacement vessels. In view of this experience, the Maritime Commission undertook to ascertain its value when used with vessels of heavier displacement and slower turning machinery. One consideration which made the experiment of further importance was its possible use in connection with the marine gas turbine.

The Commission pioneered on the *M. V. Single Hitch.* This was the first installation of a controllable pitch propeller on an American merchant vessel, and during the first few months of operation several minor faults were discovered and corrected. Today the vessel is in regular service operated by Lykes Bros., who are so enthusiastic and pleased with its operation that they recently inquired of the necessity of submitting further reports since the propeller always operated perfectly. This is cited as an example of a development which benefits the entire marine industry by offering to American operators more efficient and economic vessels with which to meet foreign competition.

RECONVERSION OF WAR-BUILT VESSELS TO PEACETIME PURPOSES

The general purpose of the Merchant Ship Sales Act of 1946 was the sale of merchant vessels (government-owned or controlled) to private interests. In connection with these transactions there were a number of minor steps which developed into problems of greater or less importance. The principal methods followed and the outstanding results obtained are covered in the following discussion.

The principal classes of vessels affected by the 1946 Act were: (a) *"Ready" Vessels.* This class included cargo vessels which had not, as a rule, undergone extensive reconversions for military service and therefore required only such repairs as were necessary to secure class, plus the removal of certain National defense features; (b) *Military Types.* This heading included, generally, ships of the long-range C2 and C3 classes which had been taken over by the military during the war and subjected to more or less extensive conversions for wartime service, relatively elaborate reconversions being necessary in order to make them suitable for general operation as cargo carriers; and (c) *Special Types.* This class included such ships as transports, combination cargo and passenger vessels.

The accomplishments secured under this act are presented under two headings, namely, Military Types and Special Types:

MILITARY CONVERSIONS

	No. of Contracts Placed in 1947	No. of Ships Delivered	Undelivered	Canceled	Estimated Latest Delivery
Straight Cargo	84	63	18	3	Jan. 1948
Good Neighbor Ships	2		2		Feb. 1948
Moore-McCormack Ships with Betterments	3		3		May 1948
American Export Ships with Betterments	4		4		June 1948
Total	93	63	27	3	

Of the above 63 ships which have been delivered 45 settlements have been made. At present it is contemplated that there will be 34 additional military vessels to be surveyed.

NEW CONSTRUCTION

The *President Cleveland* and *President Wilson* are sisterships originally contracted for as P2 turbo-electric twin screw troopships, but are under construction according to a rearrangement for combination passenger-cargo service to Japan, China, and the Philippines. These vessels feature the most extensive use of aluminum for superstructures yet employed on any commercial vessel, thereby decreasing the need for ballast and commensurately increasing cargo deadweight capacity.

The *SS Del Norte* and her two sisterships have been completed for New Orleans to East Coast of South America service. Comfortable accommodations for 98 passengers modify the basic Maritime Commission C3 cargo vessel design to provide much needed space on this essential foreign trade route for the traveling public.

Also completed are three 18½ knot twin screw refrigerated cargo vessels with accommodations for 12 passengers each, now in service in the fruit trade between the West Indies, Central America, and the United States; nine C2 combination vessels with accommodations for 52 passengers each, now plying between New York and the west coast of South America; three Victory cargo type modified to carry 98 passengers apiece between New York and the Virgin Islands, Barbados, and Trinidad; the last four of a contract for six C3 cargo vessels for New York to the east coast of Africa route; and nine smaller single screw refrigerated cargo vessels for the fruit trade.

INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA

In preparation for an International Conference for the purpose of revising the Safety of Life at Sea Convention of 1929, the Department of State authorized the creation of a number of technical committees to deal with specific points in that Convention and further authorized the creation of the General Committee, composed of representatives of all interested government agencies and of the maritime industry, as a sort of supervisory body whose final recommendations to the Secretary of State could be considered as fairly representing the national viewpoint in maritime safety matters.

This Committee met Feb. 7, 1945, in Washington, D. C., and heard Assistant Secretary Clayton comment on the need for revision of the 1929 Convention and the Commandant of the Coast Guard outline his plans for approaching the task. At that meeting, the General Committee approved the general plans and policies proposed, subject to such modifications as might be found necessary or desirable in the course of the work.

The technical committees, composed of experts in their special fields, have completed their reports, and the results have been consolidated in draft form for the consideration and comment of the General Committee. This draft, as it may finally be approved by the General Committee, will be transmitted to the Secretary of State with the recommendation that it be adopted as the United States proposal for the revision of the 1929 Convention at the Conference which is being called by the United Kingdom for that purpose on April 16, 1948.

REPORT OF THE PRESIDENT'S ADVISORY COMMITTEE ON THE MERCHANT MARINE

Since the end of the Second World War the American Merchant Marine has been the center of much controversy. The vast amount of excess tonnage in slow cargo vessels, the practical lack of passenger-carrying ships, the virtual loss of our pre-war coastwise shipping, the conflicting claims of other maritime nations, and the worldwide economic maladjustment were some of the serious elements. On the other hand, it was generally recognized that, for purposes of national defense, an adequate American Merchant Marine in active operation and manned by American officers and crew was essential.

The U. S. Maritime Commission had prepared a long-range building and replacement program which, over a period of years, would have secured some of the desired results. However, faced with rising prices and the demand for assistance to Europe, the allotment for new construction for the fiscal year 1948 was meager.

In order to secure intelligent and unbiased consideration of these most serious problems the President appointed a Committee of five outstanding leaders in industry who should present a report with recommendations. This report was submitted to the President and published in pamphlet form in November 1947. Among its salient features may be noted the following:

The basic philosophy and general provisions of the Merchant Marine Act of 1936 are sound and should be retained as the foundation for the national Merchant Marine policy. Shipbuilding skills and the know-how of ship operation are essential national assets and must be preserved. For the successful administration of the act, the Maritime Commission should be reorganized in the interest of prompt accomplishment. A shipbuilding program in general agreement with that advocated by the Maritime Commission is proposed. In the interest of national defense shipbuilding should be distributed within certain limitations. A progressive replacement program is advocated. A fixed construction subsidy is proposed. The restoration of a construction revolving fund or a separate shipbuilding authorization with suitable contract authority is proposed. Steps in the interest of domestic shipping are advocated.

It is to be noted that this report, while of genuine value as representing the formal conclusions of leaders in their several fields will not necessarily result in pertinent legislation. It is sure to have a certain amount of enduring influence, but it obviously requires the appropriation of large amounts of money by the Congress to make it effective.

CURRENT TRENDS

Trends which have been apparent during the year were: a marked interest in intelligent design looking toward continuity of hull structure and the elimination or control of vibration; a tendency, not yet too pronounced, to design around the conceptions of cargo handling and stowage; open-mindedness toward new materials in ship construction and equipment; continued emphasis on speed shown not so much in a blind acceptance of extreme figures as in a willingness to investigate possibilities and effects before a decision is reached; and a moderate but rather general reaction against unnecessary or increased controls over shipbuilding and ship operation.

PERIODICAL PUBLICATIONS

Aeronautical Engineering Review
2 East 64th St., New York, N. Y.

Civil Engineering
29 West 39th Street, New York, N. Y.

Construction Methods
330 West 42nd Street, New York, N. Y.

Contractors and Engineers Monthly
470 Fourth Ave., New York, N. Y.

Diesel Power
192 Lexington Ave., New York, N. Y.

Electrical Communication
67 Broad Street, New York, N. Y.

Electrical Engineering
29 West 39th St., New York, N. Y.

Electrical World
330 West 42nd St., New York, N. Y.

Electronics
330 West 42nd St., New York, N. Y.

Engineering and Mining Journal
330 West 42nd St., New York, N. Y.

Engineering News Record
330 West 42nd St., New York, N. Y.

General Electric Review
General Electric Company, Schenectady, N. Y.
Heating, Piping and Air Conditioning
6 N. Michigan Ave., Chicago, Ill.
Journal of Engineering Education
University of Pittsburgh, Pittsburgh, Pa.
Mechanical Engineering
29 West 39th St., New York, N. Y.
Metal Progress
7301 Euclid Ave., Cleveland, Ohio.
Mining and Metallurgy
29 West 39th St., New York, N. Y.
Modern Plastics
122 East 42nd Street, New York, N. Y.
Motor
572 Madison Ave., New York, N. Y.
Motor Age
100 East 42nd St., New York, N. Y.
Power
330 West 42nd St., New York, N. Y.
Power Plant Engineering
53 West Jackson Blvd., Chicago, Ill.
Professional Engineer
8 Michigan Ave., Chicago, Ill.
Radio-Television Journal
1270 Avenue of the Americas, New York, N. Y.
Railway Mechanical Engineer
30 Church St., New York, N. Y.
Refrigerating Engineering
40 West 40th St., New York, N. Y.
S.A.E. Journal (Journal of the Society of Automotive Engineers)
29 West 39th St., New York, N. Y.
Southern Power and Industry
1020 Grant Bldg., Atlanta, Ga.
Technical Engineering News
Massachusetts Institute of Technology, Cambridge, Mass.
Technology Review
Massachusetts Institute of Technology, Cambridge, Mass.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ALLIED BUILDING METAL INDUSTRIES, 101 Park Ave., New York, N. Y.
AMERICAN CERAMIC SOCIETY, 2525 N. High St., Columbus, Ohio.
AMERICAN CONCRETE INSTITUTE, 408 New Center Building, Detroit, Mich.
AMERICAN CONSTRUCTION COUNCIL, 154 Nassau Street, New York, N. Y.
AMERICAN FOUNDRYMEN'S ASSN., 222 W. Adams St., Chicago, Ill.
AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, 50 E. 41st St., New York, N. Y.
AMERICAN INSTITUTE OF CONSULTING ENGINEERS, 75 West St., New York, N. Y.
AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS, 29 West 39th St., New York, N. Y.
AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, 29 West 39th Street, New York, N. Y.
AMERICAN INSTITUTE OF PHYSICS, 57 East 55th St., New York, N. Y.
AMERICAN IRON AND STEEL INSTITUTE, 350 Fifth Ave., New York, N. Y.
AMERICAN MATHEMATICAL SOCIETY, 531 West 116th St., New York, N. Y.
AMERICAN PETROLEUM INSTITUTE, 50 West 50th St., New York, N. Y.
AMERICAN PUBLIC WORKS ASSN., 1313 East 60th St., Chicago, Ill.
AMERICAN RADIO RELAY LEAGUE, 38 La Salle Road, West Hartford, Conn
AMERICAN RAILWAY ENGINEERS ASSN., 59 E. Van Buren St., Chicago, Ill.
AMERICAN ROAD BUILDINGS ASSN., 1319 F. St., N.W., Washington, D. C.
AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS, St. Joseph, Mich.
AMERICAN SOCIETY OF CIVIL ENGINEERS, 29 West 39th St., New York, N. Y.
AMERICAN SOCIETY FOR ENGINEERING EDUCATION, University of Pittsburgh, Pittsburgh, Pa.

American Society of Heating and Ventilating Engineers, 51 Madison Ave., New York, N. Y.

American Society of Mechanical Engineers, The, 29 West 39th St., New York, N. Y.

American Society for Metals, 7301 Euclid Ave., Cleveland, Ohio.

American Society of Naval Engineers, Navy Building, Constitution Ave., N.W., Washington, D. C.

American Society of Refrigerating Engineers, 40 West 40th Street, New York, N. Y.

American Society of Safety Engineers, 60 East 42nd St., New York, N. Y.

American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

American Society of Tool Engineers, 2567 West Grand Boulevard, Detroit, Mich.

American Standards Assn., 70 East 45th St., New York, N. Y.

American Statistical Assn., 1603 K St., N.W., Washington, D. C.

American Water Works Assn., 500 Fifth Ave., New York, N. Y.

American Welding Society, 29 West 39th St., New York, N. Y.

Engineering Foundation, The, 29 West 39th Street, New York, N. Y.

Engineers Council for Professional Development, 29 West 39th Street, New York, N. Y.

Highway Research Board, National Research Council, 2101 Constitution Ave., N.W., Washington, D. C.

Illuminating Engineering Society, 51 Madison Ave., New York, N. Y.

Institute of the Aeronautical Sciences, Inc., 2 E. 64th St., New York, N. Y.

Institute of Radio Engineers, Inc., 330 W. 42nd St., New York, N. Y.

National Aeronautic Assn. of U.S.A., Inc., 1025 Connecticut Ave., Washington, D. C.

National Board of Fire Underwriters, 85 John Street, New York, N. Y.

National Fire Protection Assn., 60 Batterymarch St., Boston, Mass.

National Research Council, 2101 Constitution Ave., Washington, D. C.

New York Electrical Society, 29 West 39th Street, New York, N. Y.

Radio Club of America, 11 W. 42nd St., New York, N. Y.

Society of Automotive Engineers, Inc., 29 W. 39th St., New York, N. Y.

Society of Experimental Stress Analysts, Massachusetts Institute of Technology, Cambridge, Mass.

Society of Motion Picture Engineers, Inc., The, Hotel Pennsylvania, New York, N. Y.

Society of Naval Architects and Marine Engineers, 29 W. 39th St., New York, N. Y.

Society for the Plastics Industry, 295 Madison Ave., New York, N. Y.

Western Society of Engineers, 231 S. La Salle St., Chicago, Ill.

DIVISION XX

GEOPHYSICAL SCIENCES

EARTHQUAKES AND VOLCANOES

By Frank Neumann
United States Coast and Geodetic Survey

GENERAL

Seismic and volcanic activity followed a normal pattern in 1947 with no outstanding event in either field. Several great earthquakes were recorded on seismographs but, being of submarine origin, they attracted little public attention. In the United States there was a strong trend toward expanding and coordinating seismological, vulcanological, and other geophysical activities especially among governmental and university groups.

EARTHQUAKES IN FOREIGN AREAS

In Europe a destructive shock occurred on Feb. 5 near Prinzren in southern Yugoslavia, and three persons were killed on April 15 near Patras, Greece. Twelve villages in southern Italy suffered severe damage on May 11, and 12 when four persons were killed and 1,500 homes destroyed. All of Portugal was shaken on Oct. 3. Moderate shocks occurred in Switzerland, the French Alps, the Lombardy Alps in Italy, and in southern Germany.

Constantine in Algiers was damaged on Aug. 6. Perhaps the most destructive earthquake of the year occurred in the Khorassan Province of Iran on Sept. 23 when five villages were reported destroyed and 400 persons died. In South America 233 persons were killed on Nov. 1 in central Peru in the La Merced, San Ramon, and San Luis de Shuaro areas. Pasto, Colombia, devastated in 1827, suffered $580,000 damage on July 15. San Carlos, Colombia was damaged on April 11, and in Bolivia several villages near the Peruvian border were badly shaken on Feb. 24. Other shocks of note in South America occurred in Brazil, Chile, Ecuador, and southern Argentina.

In Central America two persons were killed at Puerto la Union in El Salvador on Jan. 24, and damage was also reported from Nicaragua. Volcanic eruptions accompanied the earthquakes. More than 100 shocks were felt in El Salvador and many in Nicaragua. One person was killed and many injured near Santiago, Cuba on Aug. 6.

In Japan, Hida, in Kyushu Prefecture, suffered cracked roads and walls on May 9. Gisborne, New Zealand was inundated on March 26 by a 30-foot seismic sea wave originating 50 miles offshore. A smaller wave struck Makorori and Tolago Bay on North Island on May 18. On Oct. 14 damage was reported south of Greymouth on South Island, and on Aug. 25 the Napier region of North Island was visited by the worst shake since 1931. Two moderate shocks occurred in the Philippine Islands.

EARTHQUAKES IN THE UNITED STATES AND POSSESSIONS

The strongest shock of the year in the Pacific coast area occurred in the Mojave Desert on April 10 when some small buildings were leveled in villages near the epicenter, and rocks rolled down the mountains. Tall buildings in the San Francisco Bay area were shaken on June 22 by a shock causing some damage near Watsonville. Western Montana was shaken over a wide area by an earthquake near Butte on Nov. 23. Elsewhere the most notable shock of the year centered in Branch County in southern Michigan on Aug. 9. Slight damage was reported from several towns. On May 6 a wide area near Milwaukee, Wis. was shaken and on June 29 St. Louis, Mo. reported slight damage from an earthquake centering 15 miles southeast of the city.

Central Alaska, on Oct. 15, experienced the worst earthquake since 1937. In the epicentral region 20 miles southeast of Nenana there were wide cracks in the frozen muck and rock slides and earth slumps along the railroad. Merchandise stocks were badly damaged.

SEISMOLOGICAL STATIONS AND INSTRUMENTS

Fifty-six seismograph stations were maintained in the United States, and eight outside of the country were operated by American organizations. Modern seismographs were installed at the College of the City of New York and at Hungry Horse Dam in Montana. New equipment was installed at John Carroll University, Cleveland, O.; and at Gonzaga University, Spokane, Wash.

New stations were planned in western Oregon, Utah, Connecticut, Indiana, Texas (2), and Washington. The University of Washington planned installation of modern instruments at Seattle and at two auxiliary stations in the Puget Sound area.

Experimental work on new types of seismographs was conducted by the Naval Ordnance Laboratory, Carnegie Institution of Washington, Colorado School of Mines, University of Texas, Franklin Institute, and the United States Coast and Geodetic Survey. In France a vertical-motion seismograph was developed on the principle of the American Wenner horizontal seismograph. Most of the American developments were concerned with remote visible recording, on observatory and field instruments, through the use of electronic apparatus.

A seismograph station was established in the Antarctic by the Finne Ronne Expedition. In the Aleutians the United States Geological Survey set up several stations in connection with vulcanological studies. In Canada a new station was established to study rock burst phenomena, and in Colombia a new station was planned at Chinchina. The Navy expanded its network of hurricane microseism stations in the West Indies and is inaugurating a similar network in the western Pacific. The instrumental program in Santo Domingo sponsored by Fordham University to study local shocks was continued. The Huancayo, Peru magnetic and seismological observatory of the Carnegie Institution of Washington was transferred to the Peruvian Government. New Zealand planned the establishment of a vulcanological laboratory at Rotoria, North Island.

SEISMOLOGICAL INVESTIGATIONS

Further progress was made at the California Institute of Technology in assigning instrumental earthquake magnitudes to all important earthquakes recorded on seismographs, and a comprehensive study of the geological significance of southern California earthquakes was completed. A treatise on the analysis of seismograms by distinguishing between wave types was published by a Finnish investigator. New theories were advanced to explain the mechanics of microseisms resulting from low-pressure areas over the oceans, and efforts are being made to determine water pressure at great depths to obtain corroborative evidence. The United States Coast and Geodetic Survey sponsored a worldwide program of reporting microseismic activity and surf observations during the year 1947.

Ground vibrations set up by the detonation of 4,600 tons of high explosives on Helgoland were recorded by all sensitive seismographs in Europe and at temporary stations established by British and American seismologists. Portable visible recording seismographs especially developed by the United States Navy registered the tremors as far as northern Italy. A submarine seismological survey of a portion of the Mid-Atlantic Ridge was undertaken by the Woods Hole Oceanographic Institution. New information on the structure underlying the Snake River lava plains of southeastern Idaho was obtained from seismographic observations made when large quantities of unserviceable ammunition were exploded near Arco.

ENGINEERING AND VIBRATION RESEARCH

Fifty-two strong-motion seismographs were operated in the United States and seven in Central and South America to obtain information on destructive ground motions for engineering studies. Nine moderate shocks were registered. Ten specially designed seismographs were installed on the Golden Gate bridge to study vibrations due to wind, earthquakes, and other causes. The City and County of San Francisco adopted a revised building code which contains new provisions for earthquake forces. A new seismic probability map to accompany the Uniform Building Code of the Pacific Coast Building Officials Conference was prepared. Geodetic surveys in the Imperial Valley revealed the nature of the widespread permanent ground displacements following the destructive earthquake of 1940.

SEISMOLOGICAL ORGANIZATIONS AND PUBLICATIONS

On the Pacific coast an Advisory Committee on Engineering Seismology was organized to further investigate the application of seismological data to the design of earthquake-resistant structures. The State Department again sponsored the visit of an American seismologist to many seismological stations in the American Republics to encourage the coordination and advancement of seismological work in the western hemisphere.

The first meeting since the beginning of the war of the International Seismological Association of the International Geodetic and Geophysical Union was held in Paris in July. A grant was obtained from UNESCO to continue the publication of the *International Seismological Summary* which is a compilation of seismographic data and epicenter determinations for the entire world.

VOLCANOES

In the Aleutian Islands, Akutan Volcano erupted on Jan. 5, and on Jan. 10 Mount Shishaldin on Unimak Island exploded dropping ashes two feet deep at False Pass 20 miles away.

In Central America Conchagua Volcano in El Salvador erupted for the first time since 1828, strong earthquakes occurring simultaneously in the Fonseco Bay area. In Nicaragua Cerro Negro Volcano became active about July 12. By July 22 ashes covered an area 28 miles in diameter killing cattle and damaging crops. Geleras Volcano in Colombia erupted on July 14, the same day a destructive earthquake occurred at Pasto.

In the Philippine Islands Mayon Volcano exploded on Jan. 13 after five years' dormancy, forcing evacuation of many towns. An observer in a plane saw the peak first grow very red, swell up like a bubble, and then burst. In Iceland, Mount Heckla threw clouds of ashes and fumes six miles high on March 30, blacking out a wide area and forcing ships along the south coast to use running lights in the daytime. Mount Etna in Italy experienced the most violent eruption since 1928 on Feb. 26. Vineyards and forests were damaged to the extent of $700,000. In west Java, Mount Gedeh threw up a smoke pillar two miles high on Jan. 27. A second violent eruption followed on Oct. 18. On Aug. 14 Mount Asama, 90 miles northeast of Tokyo, erupted violently, killing several mountain climbers. Paricutin Volcano in Mexico continued intermittently active. The form of the cone changed markedly through slumping of large segments, and new areas were covered by lava flows. Scientific observational programs were continued.

MINERALOGY AND PETROGRAPHY

By CLIFFORD FRONDEL
ASSOCIATE PROFESSOR, HARVARD UNIVERSITY

SYNTHETIC INDUSTRIAL CRYSTALS

A broad program of research and development work on the synthesis of single-crystals for optical, piezoelectric, and other industrial or scientific purposes has been carried on during recent years in various government, university and industrial laboratories. The program has in large part been financed by government agencies and is directed both at making the United States independent of certain foreign raw materials of foreign origin and at developing new crystals of superior properties. The most important outcome of this work in 1947 was the discovery that the mineral tourmaline could be synthesized by laboratory methods. This substance, a complex borosilicate useful for electronic and optical applications, is widespread in nature but rarely is of sufficiently high quality to be utilized. Most of the natural supply has come from Brazil and Madagascar. It has now been synthesized, although so far only as microscopic crystals by re-crystallization of fused tourmaline glass in water held at high temperatures in steel pressure vessels.

Announcement also was made of the synthesis of the substance titanium dioxide (rutile) as single-crystals of large size. The material was made by the Verneuil process, used also in the synthesis of aluminum oxide (corundum). The synthetic rutile has a number of unusual properties which probably will find important industrial and scientific applications. The extremely high indices of refraction will lead to applications in refractometers and other optical devices, and to some use as a gem stone. Its outstanding characteristic, however, is in an extremely low electrical resistance comparable to that of a semi-metal. This originates in an oxygen-defect structure of the crystal, and the resistance can be adjusted upwards by many megohms by controlling the oxygen deficiency.

Further progress also was reported in the synthesis of single-crystals of quartz, and at least one of the several methods of synthesis now known is nearing the pilot plant stage. The substance has been grown as relatively large crystals from solutions of silica in alkali carbonate or silicate solutions held at high temperatures in steel containing vessels. At the present time the United States is entirely dependent on Brazil for supplies of this important raw material. Both nepheline and mica (fluor-phlogopite), the latter useful because of its dielectric properties, are being synthesized, the latter on a large scale, by methods involving crystallization from molten solutions.

SYNTHETIC STAR SAPPHIRES AND RUBIES

The crystallized form of aluminum oxide, known as corundum because of its toughness, resistance to impact, and great hardness, long has been used as a bearing material in watches, compasses, meters, and other instruments. The colored varieties of corundum known as sapphire and ruby also are highly prized as gem stones; these owe their blue and red color, respectively, to traces of impurities present in solid solution in the crystal structure. Almost all of the corundum used for both industrial and gem purposes is presently made synthetically. In the Verneuil process, powdered aluminum oxide is melted in an oxyhydrogen or oxyacetylene flame and is allowed to fall dropwise and crystallize upon the surface of a pear-shaped seed crystal known as a boule. Natural gem sapphire and ruby, especially when of fine color and large size, always has sold at a considerable premium over the synthetic stones. This has been particularly true of the asteriated types, which hitherto have resisted all attempts at synthesis and are known only from nature. The asteriated stones show a visible, six-rayed luminous star superposed on the colored background. Star sapphires and especially star rubies of large size and superior quality sell at prices upwards of several thousand dollars a carat and in recent years have enjoyed a considerable vogue. During the fall of 1947, the Linde Air Products Co., a subsidiary of Union Carbide and Carbon Corp., and presently the sole manufacturer of synthetic corundum in the United States, made the startling announcement that both star sapphires and star rubies had finally been synthesized. Small numbers of the stones were then made available through commercial channels. The synthetic star stones rival the finest of the natural gems both in color and in perfection of the star. The price, while lower than that of the natural material, still is high relative to the ordinary varieties and is likely to remain so in view of the apparent difficulties of manufacture. The synthetic stars are fundamentally identical with the natural gems but have certain characters discernible to an expert which allows them to be distinguished from the latter.

NEW POLYMORPHS OF ZINC SULFIDE

X-ray study of zinc sulfide crystals, recently found at localities near Pittsburgh, Pa., have led to the recognition of an important series of polymorphs analogous to those known in silicon carbide. The crystals occur in clay ironstone concretions in the Brush Creek limestone formation of Pennsylvanian age. Four types of polymorphs have been found. These are crystallographically related to wurtzite and form a series of hexagonal and rhombohedral structures based on alternative schemes of hexagonal closest-packing. This discovery will no doubt lead to the recognition of similar instances of polymorphism among other hexagonal or pseudo-hexagonal minerals characterized by close-packing of the anions.

MISCELLANEOUS MINERALOGICAL STUDIES

The mineral brazilianite, first described in 1945 from a locality in Brazil, recently has been found in a granite pegmatite at North Groton, New Hampshire, that is being mined for mica and beryl. It occurs with whitlockite, first described from this locality in 1941, and a number of other rare phosphates. At least 15 new minerals were described during 1947, but not all of them appear to be entitled to species rank. A new arsenate of bismuth from a tin deposit at Potosi, Bolivia, has been named rooseveltite. Two new uranium minerals from the deposits at Shinkolobwe in the Belgian Congo, both uranium hydroxides, have been named paraschoepite and epiianthinite. Pennantite is a new manganese-rich type of chlorite from the Benallt mine in Wales. A new telluride of iron allied to marcasite from a gold vein in Quebec, has been named frohbergite. The second known natural occurrence of sodium bicarbonate in the United States has been found in oil shale of the Green River formation in Garfield county, Colorado. A new species, nigerite, has been added to the small list of minerals containing appreciable amounts of tin. It occurs as hexagonal plates associated with cassiterite in pegmatites in central Nigeria. Nuevite is a new rare-earth columbate from California. Fairchildite and butschliite are carbonates of potassium and calcium found in slags formed by the fusion of wood ash in partially burnt trees.

PUBLICATIONS

Strategic Minerals: A Summary of Uses, World Output, Stockpiles, Procurement, by J. B. DeMille (McGraw-Hill, New York, 626 pp., 1947). Information is given concerning the properties, uses, domestic and foreign sources of supply, production and price of 76 minerals and metals of industrial importance. The descriptions are arranged alphabetically, from "aluminum" to "Zirconium" and include much information concerning Governmental controls and official regulations issued during the Second World War.

An Introduction to Crystallography, by F. C. Phillips (Longmans, Green, London, 302 pp., 1947) is a clearly expressed survey of the subject at an elementary to intermediate level. The work is divided into two main parts, concerned with the external symmetry and the internal atomic symmetry of crystals.

Identification and Qualitative Chemical Analysis of Minerals, by O. C. Smith (Van Nostrand, New York, 351 pp., 1946). A determinative handbook consisting essentially of tables based on the physical and chemical characters of minerals. Twenty pages of colored illustrations, mainly depicting blowpipe reactions and mineral colors, are included.

Revised Lapidary Handbook, by T. H. Howard (Greenville, S. C., 220 pp., 1946) is a detailed treatise on the art of cutting, carving, and polishing gem stones written primarily for the amateur.

TERRESTRIAL MAGNETISM AND ELECTRICITY

By H. D. Harradon

Department of Terrestrial Magnetism,
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GENERAL

The year 1947 was marked by a new tendency in the conduct of geomagnetic, geoelectric, and ionospheric operations. This tendency is particularly manifest in respect to work of a continuous character which must be carried forward over a long period of years. Private organizations and universities have redirected their efforts mainly to short-term experimental and theoretical researches and are now participating chiefly on a cooperative basis, in these larger-scale investigations in the public interest, which have been considerably expanded under government auspices.

GEOMAGNETIC RESEARCH

The major development in geomagnetism was the evolution of an attractive new theory of the earth's main field and its secular change by W. M. Elsasser. According to this theory, extensive fluid motions within the earth's central core are the cause of the magnetic field. The mechanism is somewhat analogous to that of a sort of self-exciting dynamo. Given a field like that of a uniformly magnetized sphere, even though initially very weak, there will be accompanying it an electric pattern as well. These patterns or modes will interact to intensify each other, the power coming from the rotational energy lost through friction caused by lunar tides. The main product of the interaction is a magnetic field within the core which is likely to be stronger than that at the earth's surface, and of a type which has no magnetic field just outside the core. After the field builds up, it will exert a braking influence on the fluid motion itself so that there is little danger of creating a field of very great strength. The results of the theory appear to fit the facts, but, as little is known of the earth's central core, it is difficult to determine the validity of the assumptions used. Hence the most important point established is that it may be possible, starting from small beginnings, to build up a large field of permanent form. Cowling had previously proved that such a field could not be built up on the basis of a fluid-motion concept, but this proof did not take into account the presence of the electric modes of a conducting sphere.

NEW PRIMARY STANDARD

For many years, international magnetic standards have been maintained by comparisons with an instrument at the Cheltenham Magnetic Observatory of the United States Coast and Geodetic Survey. The last primary standards, however, were constructed some 30 years ago, and, in anticipation of the need of maintaining international standards and of obtaining international agreement on the value of the gamma, work on a new primary standard of great accuracy, begun by the U. S. Coast and Geodetic Survey, was continued and brought to a successful conclusion by the Department of Terrestrial Magnetism. This new standard, now completed, permits for the first time the determination of any component of the earth's magnetic vector, although it was primarily designed to measure the horizontal intensity, vertical intensity, and inclination. The constant is determined by the mutual inductance between a primary coil and a rotating secondary coil. The absolute value of the coil-constant is known to three points in a million. It is expected that this primary standard will be used by the U. S. Coast and Geodetic Survey, and, when its operation is satisfactory, it will serve as a basis for the adoption of a standard value of the gamma.

MEASUREMENTS OF GLACIAL CLAYS

Measurements of glacial clays have been continued in order to determine the changes in the earth's magnetic field over a period of many thousands of years. The direction of the field may be deduced from the polarization of clays by means of an extremely sensitive apparatus. It was found that this field, in direction at least, was substantially similar in past ages to that existing at the present time, the variation amounting to ±30°. The measurements have now been extended over an additional 5,000 years, and an indication has been noted of a 300-year period in variations of the compass.

The most important and significant results have been obtained in the determination of the polarization of the same clays redeposited in the laboratory with various field strengths. In this way was obtained a curve relating to the intensity of the field in which the clays were originally deposited and the newly deposited clay. For measurements of the clay *in situ*, the average value of intensity about 3,000 years ago was found to be within ten per cent of that of the present geomagnetic field.

To facilitate this work, a truck was equipped with apparatus suitable for examination of clay and rock samples in the field, thus eliminating the possibility of disturbing their magnetization during transportation to the laboratory and speeding up the work by a factor of 10 or 20. Operations were carried on during the fall of 1947 in the Connecticut River Valley and the Five Finger Lake region of the St. Lawrence River Valley. One of the results was the verification of the geologic stability of clay.

A spherical harmonic analysis of the earth's main field for 1945.0 indicated that the fraction of the dipole component of the main field of external origin was less than one per cent of the observed surface field and, accordingly, less than indicated by previous analyses. Examination of the analyses of the secular change at four epochs, ten years apart, indicated a rather steady decrease of about 20 gammas per annum in the dipole component although the most recent value, that for epoch 1942.5, is considerably less. This may indicate that the dipole component of the main field may be diminishing at present less rapidly than during the last century.

This new analysis gave the coordinates for 1945.0 of the north geomagnetic pole (the point where the axis of uniform magnetization penetrates the earth's surface in north polar regions) as 78.6° north and 289.9° east, and for the south geomagnetic pole as 78.6° south and 109.9° east. These results differ from those obtained by Bauer for 1922 by only 0.1° in latitude and 1.1° longitude.

New opportunities for direct measurements in the region 100 km or more above the earth have been opened by the experimental firing of the V-2 and other rockets by the armed forces of the United States. One of the experiments concerns the direct observation of the magnetic fields within the large electrical currents which circulate in the upper atmosphere and cause magnetic variations at the earth's surface. Attention has been given to preliminary designs for apparatus to record the magnetic changes expected when a rocket passes through and above a current-sheet in the ionized regions. This would be of great interest in locating the level of the currents which cause the magnetic diurnal variation, magnetic storms, and other variations. Further development of this project by the Applied Physics Laboratory of the Johns Hopkins University, in cooperation with the Naval Ordnance Laboratory and the Department of Terrestrial Magnetism, is anticipated during the coming year.

The precision of measurements of total magnetic intensity with airborne magnetometers has been considerably improved by various geophysical prospecting companies and the Naval Ordnance Laboratory. The entire state of Texas and other extensive areas of the United States have already been surveyed by this method. Its importance may be readily understood from the fact that there is thus afforded a speedy reconnaissance survey of potential petroleum and other mineral sources for an entire state in only a few months. This reconnaissance survey indicates potentially valuable areas warranting later application of gravity and seismic methods of geophysical prospecting which assist the geologist in the location of suitable sites for drilling operations.

AIRBORNE MAGNETOMETER

This airborne magnetometer has also been usefully applied in obtaining information relating to the distribution of land areas underlying the thick ice of the Antarctic continent, the location of submerged and unchartered mountains and extinct volcanoes in the Pacific area, and studies are in progress for determination of indications relating to deep-seated structural composition of the Appalachian Mountains and the continental shelf of the United States and nearby islands. This work is being undertaken by such organizations as the U. S. Geological Survey, Naval Ordnance Laboratory, and Columbia University.

Progress has also been made toward the measurement of other field components by air, and experimental surveys have been conducted, particularly in magnetic declination. When suitable techniques are further developed, it will be possible to conduct surveys by air for obtaining the values customarily required for the construction of isomagnetic charts for navigation and other purposes.

GEOELECTRICITY

A thunderstorm project (U. S. A. F. —Carnegie) was designed to contribute to the elucidation of the fundamental problems of terrestrial electricity—the origin and maintenance of the earth's negative charge. It is possible that measurements of air conductivity and potential gradient during airplane flights above thunder clouds may prove or disprove the theory that the flow of electrical current from the ionosphere into thunderstorms distributed over the earth's surface is sufficient to maintain the earth's charge. In cooperation with the U. S. Army Air Weather Service and in close liaison with the Thunderstorm Advisory Committee, instruments developed at the Department of Terrestrial Magnetism of the Carnegie Institution were installed in airplanes, and flights were made in the autumn of 1947. During August and September, installations were made in an airplane (B-29) at Wright Field. On Oct. 3, the airplane was moved to Tinker Field near Oklahoma City, whence flights over four thunderstorms were made, ranging in altitude from 40,000 to 44,000 feet. Measurements of the current passing through thunderstorms were made on all flights by photographing the dials of the recording instruments every few seconds. Considerable time will be required to complete the reduction of the records.

The observational portion of the Weather Bureau-Army-Navy-NACA Thunderstorm Project was terminated Sept. 23, 1947. The analysis work is well under way, and it is expected that the Project will terminate June 30, 1948.

A very successful season was experienced in 1947 when many more thunderstorms were observed than had been expected. A total of 88 storms passed over the surface network between May 1 and Sept. 23, 1947. There were 38 airplane flights through these thunderstorms at different heights with a total of approximately 775 traverses. These planes were equipped to measure the electric field of the atmosphere. An AT-6 airplane made approximately 66 traverses through small cumulus clouds, the plane being specially equipped for this purpose and selected for use during the 1947 season in place of the gliders used in Florida in 1946.

It was necessary for proper analysis of thunderstorm data to make certain other studies which included soundings in stable air, soundings into cumulus clouds, and others of a series nature begun in the morning, continued through the day during the period of instability, and concluded in the evening when the air had again become stable. In cooperation with Stanford University, eight electrostatic field-sondes were released and ground (electrostatic field) measurements were taken during 30 storms.

In the summer of 1947, a very complete program of special observations of atmospheric electricity was carried out at the Huancayo Magnetic Observatory by W. D. Parkinson. These observations included conductivity of the air, ionic content of the air with respect to the various types of ions, determination of the mobility of ions and rate of ionization.

A number of projects, under government contract, was carried out during the year, for the investigation of lightning discharges by means of apparatus mounted in airplanes. Extensive work on lightning, dealing particularly with magnitude, sign, and character of the current in the stroke, was continued by the General Electric Company.

UPPER AIR RESEARCH WITH V-2 ROCKETS

Important contributions to solar spectroscopy, cosmic rays, and measurement of atmospheric pressures and temperatures have already resulted from upper-air research utilizing German V-2 rockets. This extensive program is being conducted by various organizations including the Air Materiel Command, involving the University of Michigan and Watson Laboratories, the Applied Physics Laboratory of the Johns Hopkins University, the Signal Corps, and Naval Research Laboratory, together with a number of other contributing organizations. All the activities are coordinated through a V-2 Panel on which the various participants are represented. The present program embraces cosmic rays, ionosphere, pressure, temperature, and composition measurements, and astrophysics involving the spectrum of the sun.

The results already achieved have supplied information on the nature of cosmic radiation. It was determined that the greater portion of primary radiation is made up of "hard" particles and that about one out of five of these particles will produce a shower in 12 cm of lead. It was also found that large showers were produced by the primaries in a rather considerable mass of material in the warhead surrounding the counter telescope and that (at zenith angle of 45°) about 60 per cent of the radiation was absorbable in a large thickness of lead (14 cm) and about 35 per cent of the high altitude rays were stopped in either the first or second plate, indicating that the component was not primary.

One flight carried a single Geiger counter in the extension of the nose of the rocket. By means of guard counters the effect of the rocket could be subtracted from the total counting rate of a single counter. From this, a measurement of the total flux of particles above the atmosphere has been made. The value of the flux is two to three times that obtained from Millikan's data and indicates that there is either a considerable quantity of low-energy particles above the atmosphere or that a large part of the energy of the primaries is dissipated in non-ionizing events.

By means of ionization chambers carried in the rocket an extension of the rate of burst formation with altitude has been obtained. It is thus indicated that these bursts increase in frequency right up to the top of the atmosphere. This measurement shows that the primaries do make large bursts on the first encounter with the atmosphere.

It has been possible, by means of rockets, to make measurements inside the ionized regions of the upper atmosphere namely at altitudes corresponding to the top of the E-region. Rocket-borne apparatus supply direct means of solving the present ambiguity regarding the ratio of free electrons to ions in this region, thus offering more accurate knowledge of many factors affecting long-distance radio propagation. Data have been obtained from the retardation of the waves as the rocket passes through the ionized layers, but they have not yet been reduced or interpreted.

One of the outstanding measurements has been the determination of pressure and temperature up to altitudes of 100 km. Especially noteworthy is the correspondence of the shapes of these curves to the analogous NACA (National Advisory Committee for Aeronautics) curves which were inferred from the physical and geophysical effects in the atmosphere. In general, it may be said that the experimental rocket curves fall entirely within the limits specified in the NACA predictions.

IONOSPHERIC RESEARCH

The Central Radio Propagation Laboratory of the National Bureau of Standards has continued the services of collection and distribution of ionospheric data. Long-term and short-term forecasts of radio-communication conditions, as well as results of special analysis and research projects, are distributed to a large mailing list.

Effects of the earth's magnetic field on the distribution of ion density in the ionosphere have been recognized and are being applied in forecasts of radio propagation conditions. The sunspot-numbers were higher in 1947 than at any other time since regular observations were begun a century ago, and this new maximum of solar activity was reflected in the behavior of the ionosphere leading to very high critical frequencies and making it possible on numerous occasions to carry on long-distance communication on 50 megacycles.

It has been concluded from studies of layer formation and equilibrium, that observed electron densities may be accounted for without having recourse to high solar energy.

Extensive investigations of upper atmospheric conditions have been undertaken by numerous investigators employing radio methods for the observations of ionized trails produced by meteors.

The panoramic motion-picture technique was applied to recordings of the solar eclipse in Brazil on May 20, 1947. The anticipated ultraviolet eclipse-effects in the E-, F1- and F2-regions were followed by the formation of an unusual stratification in the F2-region. No evidence of a corpuscular eclipse was reported.

Where ionospheric trends with solar activity, are well established, better measures of solar activity can be obtained from ionospheric data than from observed sunspots.

The Derwood Experimental Laboratory of the Carnegie Institution of Washington has been completed. This Laboratory replaces the Kensington field station and provides a base for experiments in the upper atmosphere, and related physical and solar phenomena, including experiments involving radio echo sounding, cosmic rays, solar noise and related effects.

OBSERVATORIES AND SURVEYS

The five magnetic observatories of the U. S. Coast and Geodetic Survey (Cheltenham, Md.; Tucson, Ariz.; Honolulu, Hawaii; Sitka, Alaska; and San Juan, Puerto Rico) continued in operation through the year. At the Honolulu Magnetic Observatory, the instruments were transferred in March 1917 to the new buildings on Barbers Point. The site near Eva, which has been used for 45 years, was directly in line with the heavily used airplane runway, necessitating abandonment of the magnetic work there. The new magnetic observatory near College, Alaska, is nearing completion, and it is expected that it will be placed in routine operation early in 1948.

The geomagnetic, ionospheric, seismic, and meteorological programs were maintained at the Huancayo Magnetic Observatory in Peru, operated by the Carnegie Institution of Washington. In accordance with the policy of the Department of Terrestrial Magnetism (under whose auspices the Observatory was established and has been operated) to devote increasing attention to short-term experimental and theoretical researches, arrangements for the transfer of the Huancayo Magnetic Observatory to the Government of Peru were completed, and the documents legalizing the transfer as of July 1, 1947, were signed at Washington, Sept. 19, 1947. The Observatory will henceforth be known as the Geophysical Institute of Huancayo (Instituto Geofísico de Huancayo). In accordance with the agreement the Carnegie Institution of Washington will supply about one half of the costs of maintenance until June 30, 1949, after which date all expenses will be borne by the Government of Peru. During the years that have elapsed since its establishment in 1922, the Observatory has contributed much to the advancement of geophysical science, and there is every reason for believing that the high standards maintained in the past will be continued under the new management. In like manner, the Watheroo Magnetic Observatory in Western Australia, operated by the Carnegie Institution of Washington since its establishment in 1919, was transferred on July 1, 1947 to the Government of Australia.

The regular geophysical programs were continued throughout the year at the observatories of Pilar, La Quiaca, South Orkneys, and San Miguel in Argentina, at the Vassouras Observatory in Brazil, and at the Magnetic Section of the National Astronomical Observatory of Mexico at Teoloyucan.

The Canadian observatories of Meanook and Agincourt, under the Dominion Observatory, continued in operation through 1947, as did also the Godhavn Observatory in Greenland, operated by the Danish Meteorological Institute of Copenhagen.

In cooperation with, and under the sponsorship of the Interdepartmental Committee on Scientific and Cultural Cooperation, J. H. Baden, Geophysicist, U. S. Coast and Geodetic Survey, made magnetic observations at various repeat stations in several South American Republics from February to June 1947. The results of these observations will be used in the revision of the isogonic charts of Central and South America.

POLAR REGIONS

Lieut. Charles A. Schoene and Dr. H. Herbert Howe were representatives of the U. S. Coast and Geodetic Survey on the recent Navy Antarctic Expedition, known as Operation Highjump. On the southward journey magnetic dip observations were made at one point on the pack-ice. At Little

America, a magnetograph for vertical intensity was operated from Jan. 29 to Feb. 22, 1947, and absolute observations were made for total intensity, dip, horizontal intensity, and declination. On the return trip instruments were standardized at Amberley Magnetic Observatory, near Christchurch, New Zealand, and a secular variation station was occupied at Old Panama.

The following preliminary values give the mean annual change for Little America for the interval 1940-1947: Declination: 5′ per annum counterclockwise sense; south dip: 4′ per annum, decreasing; horizontal intensity: 70 gammas per annum, increasing; vertical intensity: 100 gammas to 170 gammas, decreasing numerically.

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS

After a lapse of nine years, the Eighth General Assembly of the International Union of Geodesy and Geophysics, of which the Association of Terrestrial Magnetism and Electricity is a part, is tentatively scheduled to be held in Oslo, Norway, Aug. 17-28, 1948.

U. S. COAST AND GEODETIC REPORTS

The U. S. Coast and Geodetic Survey is issuing a series of reports which present the records of its observatories in a new form. These reports contain approximately quarter-size reproductions of the magnetograms for six-month periods, together with preliminary annual mean values derived from abridged scalings. The purpose of presenting the magnetograms in this form is to mitigate the condition of increasing lag which has heretofore existed. During the calendar year 1947, the following publications have been issued (or are in press): *Magnetograms,* Cheltenham, Md., January-June 1946 (No. MG-C46.1); *Magnetograms,* Sitka, Alaska, January-June 1946 (No. Mg-S46.1); *Magnetograms,* Tucson, Ariz., January-June 1946 (No. MG-T46.1); *Magnetograms,* Honolulu, T. H., January-June 1946 (No. MG-H46.1); *Magnetic Declination in the United States,* 1945 (Serial 664).

OTHER PUBLICATIONS

At the Department of Terrestrial Magnetism six volumes of results have been completed, two of which contain the magnetic results from the Watheroo Magnetic Observatory for the years 1919 through 1944, being volumes VII-A and VII-B of the *Researches of the Department of Terrestrial Magnetism.* Two further volumes of the "Researches" have been published: C.I.W. Pub. 175, vol. 7, *Land and Ocean Magnetic Observations 1927-1944,* and C.I.W. Pub. 175, vol. 12, containing I—"Ionospheric Research at College, Alaska," July 1941-June 1946 and II—"Auroral Research at College, Alaska," 1941-1944. In press is a volume presenting the Tucson Observatory earth-current results for the period 1932 to 1942. Manuscripts for eight additional volumes have been prepared covering work on geomagnetism, ionosphere, earth-currents, and atmospheric electricity at various observatories, including Watheroo and Huancayo. A book entitled *Description of the Earth's Main Magnetic Field and Its Secular Change 1905-1945* has also been issued.

In order to assure that geophysical data from observatories become accessible for study without final publication, recommendations were made to the Huancayo and Watheroo observatories for relatively prompt publication of the vital summaries of their observations, using microfilm techniques, for distribution to a selected list of interested establishments.

The U. S. Coast and Geodetic Survey, which has long been recognized as an important repository of geomagnetic data from worldwide sources, has now been designated by legislative action as the official United States repository. Organizational arrangements and preliminary activities have been instituted for the fulfillment of this function.

The quarterly journal *Terrestrial*

Magnetism and Atmospheric Electricity, published by the Johns Hopkins Press, completed its 52nd annual volume in 1947. This journal contains original contributions to geomagnetism and geoelectricity and related subjects, sections on magnetic storms, magnetic character figures, notes and annotated bibliography.

The 28th annual meeting of the American Geophysical Union was held in Washington, D. C., April 28-30, 1947. The papers presented at these meetings, as well as original contributions from other sources, are published in the bimonthly issues of the *Transactions,* together with progress-reports, review, abstracts, bibliographies, information and notes of interest to geophysicists.

Geophysics, the quarterly official publication of the Society of Exploration Geophysicists, completed its 12th volume in 1947. This journal contains original contributions to general and applied geophysics, often including articles dealing with the electrical and magnetic methods of geophysical prospecting. It also contains reviews of pertinent publications and information of interest to members of the Society.

Terrestrial Magnetism and Electricity ("Physics of the Earth," vol. VIII), originally published in 1939 by McGraw-Hill Book Co., has been out of print for some time. In order to meet the demand for this volume, it is now being reprinted by Dover Publications, New York.

METEOROLOGY AND CLIMATOLOGY

By F. W. Reichelderfer
Chief, United States Weather Bureau

GENERAL

The year 1947 in the field of meteorology and climatology was much like the previous year in many respects. There was a continuation of activities associated with the resumption and expansion of peacetime weather services. The demand for weather and climatological information from the general public and private interests continued to increase as more and more people became acquainted with the special uses to which such information could be put in their various activities. The Weather Bureau placed special emphasis on re-directing its programs to meet the growth in demands for these services. Some expansion in the services of the Weather Bureau occurred to meet the needs of increased international air traffic which included the establishment of aviation forecast centers at Honolulu, T. H., and San Juan, P. R., and additional staffing of existing international aviation forecast centers within the country. Agreements were made through the International Civil Aviation Organizations for the establishment of an adequate number of weather ships, strategically located in the North Atlantic, to provide weather information for international airways. One half of the ships are to be provided by the United States.

The service through which weather reports are received from merchant ships was reactivated following the removal of restrictions on communications and the return of the merchant fleet to private operators. By the middle of the year the program was approaching full operation with over 300 weather reports per day being received from the Atlantic, Gulf, and Pacific waters. Arrangements were also made with foreign meteorological services of maritime nations for their ships to supply weather reports in exchange for ours.

To meet the need for more observations from high-latitude regions, the Weather Bureau in cooperation with Danish and Canadian authorities established three Arctic weather stations, at Thule, Greenland, at Eureka Sound, and at Resolute Bay on Cornwallis Island, the latter two in Canada. In addition, an automatic weather station was installed at Dundras Harbor, Canada. The surface and upper air reports from these stations will provide the basis for further research into the peculiarities of arctic weather and at the same time meet some of the needs of meteorologists engaged in preparing forecasts for extended periods of time, which require data from the entire Northern Hemisphere.

INTERNATIONAL CONFERENCE

Directors of Meteorological services, delegates, and advisers representing 56 countries, and observers from the United Nations and the International Civil Aviation Organization attended the Conference of Directors of the International Meteorological Organization in Washington in September and October. At Toronto, Canada, technical and regional commissions of the organization had previously prepared more than 400 technical resolutions, covering nearly all phases of meteorology and climatology, for consideration by the Conference of Directors. Among the more important decisions made at Washington was the adoption of a universal synoptic code for weather messages from land and ship stations. A constitution for a new World Meteorological Organization was agreed upon by the conference, and when it is formally ratified by the governments of 30 countries, the new organization will replace the International Meteorological Organization, which has existed as an informal body without treaty status since 1878. The new organization will negotiate for affiliation with the United Nations but will remain an autonomous group.

RESEARCH PROGRAM

The post-war research program, which was well under way at the end of 1946, continued with marked changes made in the case of only a few projects. The majority of the research projects is under government sponsorship and is established on a relatively long-term basis, usually lasting at least two or three years.

THUNDERSTORMS

The second phase of the observational program of the research project for the study of thunderstorm structure, under the joint sponsorship of the United States Air Force, Navy, National Advisory Committee for Aeronautics, and the Weather Bureau, was conducted at Clinton County Army Air Field near Wilmington, O. The first phase of the observational program was completed in 1946 at Orlando, Fla. when thunderstorms of a simple cellular type were observed. Observations at Wilmington were instituted to gather data on the more complicated mid-latitude continental thunderstorms. The basic observational program in the second phase of the project was similar to that of the first phase but was amplified by supplementary studies. These included an attempt to determine quantitative precipitation by the use of radar intensity echoes, an atmospheric electricity investigation, and soil moisture and run-off studies. The comprehensive data collected will offer research workers a basis for many years of study on this important problem, and at the same time will provide immediate information on the characteristics of thunderstorms, a topic of vital importance to the aviation industry.

ARTIFICIAL PRECIPITATION

A topic which received more attention in 1947 than any other, especially in the press, is the artificial production of precipitation by seeding of clouds containing supercooled water droplets by dispersal from aircraft of solid particles of carbon dioxide, commonly referred to as dry ice. Vincent J. Schaefer (*Science,* Nov. 15, 1946) accumulated evidence in the laboratory and in the field which showed conclusively that clouds containing supercooled water droplets can be transformed into ice crystal clouds, and that the resulting ice crystals can grow to such size that they fall from the cloud as precipitation. The publication of the results of Schaefer's work led to wide-spread experiments in the field, the majority of which were uncontrolled as far as accurate determination of results was concerned; many were made in a haphazard manner by laymen.

The amount of precipitation to be expected as the direct result of the application of this technique has not been determined. The special conditions required for successful seeding of clouds are those which often lead to natural precipitation a short time later. Hence, in many of the experiments it was not known whether the rain occurred naturally or was artificially produced, or if it would have occurred a short time later if the seeding had not taken place. In addition to its application in the production of precipitation under special conditions, the technique has also been applied successfully in dissolving small portions of thin-layer clouds composed of supercooled water droplets, an operation of vital interest to persons associated with aircraft operations.

Two large-scale research projects on this general subject are in progress, one at the General Electric Research Laboratories, sponsored jointly by the Office of Naval Research and the Army Signal Corps; the other, at the Clinton County Army Air Field, Wilmington, Ohio, conducted by the U. S. Weather Bureau with the assistance of the U. S. Air Force, the National Advisory Committee for Aeronautics, and the U. S. Navy. The General Electric project involves a general study of cloud micro-structure and the phenomena of hydrometeor formation, with special emphasis on techniques for controlling and producing rain and snow. It will include cloud particle investigation to determine the liquid water content, particle size and size distribution, and the rate of growth of clouds with respect to their bases; and modification of supercooled clouds by means of seeding technique which may produce a snow or rain fall.

The project at the Clinton County Army Air Field, directed by the U. S. Weather Bureau, will use many of the facilities already available there as a result of the thunderstorm investigations described above. These facilities include 55 ground stations equipped to measure wind, temperature, humidity, and the amount and rate of precipitation; radiosonde equipment for detailed measurement of the characteristics of the upper air; and meteorological radar equipment for evaluating and automatically plotting the precipitation rates at various altitudes. It is planned to measure the physical properties and characteristics of various types of clouds capable of producing rain or snow. A carefully controlled study will be made of the factors which control the stability of natural clouds and the physical changes taking place when a cloud precipitates. These field operations will be supplemented by laboratory investigations as the need arises.

FACTORS IN AIRCRAFT ICE ACCRETION

The National Advisory Committee for Aeronautics, with the assistance of the U. S. Weather Bureau, made measurements of certain meteorological factors related to the rate of aircraft ice accretion from specially equipped aircraft. (NACA Technical Notes 1391, 1392, 1393, and 1424.) The work included the measurement of free-air temperature, liquid water content, drop size and size distribution in icing conditions, and study of the general meteorological conditions associated with these cases, with special emphasis on the cloud type.

ATMOSPHERIC CIRCULATION

Investigations of atmospheric circulation, including the studies of divergence, vertical motion, and the mechanism of pressure changes, continued to be major projects at several of the universities. In several cases, the projects were expanded in scope to consider the associated transformations of energy in the atmosphere as well. Because of the tremendous amount of work involved in projects of this type, progress is relatively slow, and results will be forthcoming only after several years of work. No further results of these projects were published during the year.

FORECASTING FACTORS

Similarly, the research on methods of extended-range forecasting continued in the U. S. Weather Bureau and at the Massachusetts Institute of Technology, and problems of the general circulation, a more complete knowledge of which is basic to further progress in extended forecasting, were further attacked at the University of Chicago. The California Institute of Technology began a study of the mechanism of blocking which is of importance in extended forecast work. Published contributions in this general field during the year included: a study of the limiting zonal wind distribution which would result from intense, thermally driven, lateral mixing processes by Rossby (*B. A. M. S.,* Vol. 28, pp. 53-68); an investigation of the formation of semi-permanent centers of action in relation to the horizontal solenoidal field by Jaw (*J. Meteor.,* Vol. 3, pp. 103-114); a paper by Namias (*J. Meteor.,* Vol. 4, pp. 125-133) on the physical nature of fluctuations of the zonal circulation; a second paper by Namias (*Monthly Weather Review,* Vol. 75, pp. 145-152) regarding characteristics of the general circulation over the Northern Hemisphere during the abnormal winter 1946-47; and a treatment of the dynamics of long waves in a baroclinic westerly current by Charney (*J. Meteor.,* Vol. 4, pp. 135-162).

In the field of short range forecasting, the U. S. Weather Bureau developed further the map-typing system of forecasting rain for the coastal region of California and applied it to the specific problem of forecasting precipitation for the period 24 to 48 hours in advance at San Francisco. The result was an objective method of forecasting from which improved forecasts are now being prepared for the San Francisco area. The development of this forecasting method has been described by Vernon (*Monthly Weather Review,* Vol. 75, No. 10). Other studies on short-range forecasting techniques of a similar nature are being carried on by the Weather Bureau in its Washington research unit and at its field stations.

ELECTRONIC COMPUTER

The studies on the use of the electronic computer for the rapid solution of complex meteorological problems, under way since early in 1946 at the Institute for Advanced Study, Princeton, N. J. progressed satisfactorily. The immediate aims of the group are the selection and mathematical formulation of meteorological problems to be solved by the electronic computer, and the construction of a pilot model of a computer suitable for these purposes. The Institute has had the cooperation of a number of other organizations in conducting this project.

CONVECTIVE PATTERNS IN ATMOSPHERE AND OCEAN

A number of papers on the general topic of convective patterns in the atmosphere and ocean were presented and published (*Annals of the N. Y. Acad. Sc.,* Vol. XLVIII, pp. 705-844) through a conference of the Section of Oceanography and Meteorology of the New York Academy of Sciences in May. This was the second meeting of this group which emphasized a single problem of meteorology and oceanography. The previous conference took place in 1942 and concerned boundary-layer problems.

CLIMATOLOGY

Long range planning of military operations during the war led to demands by the Armed forces for studies of the effect of weather on each future operation. The solution of each new problem required close coordination between the climatologist and the military planner in order that the climatological information could be of direct use without further interpretation. This type of analysis was often referred to as applied climatology, since each project was slanted toward a certain practical application. With the view that the basic method of weather planning for military operations could be applied to the planning operations of industry and agriculture, a summary of the more important wartime developments in applied climatology was prepared by Jacobs (*Meteor. Monographs,* Vol. 1, No. 1) who was associated with the AAF Weather Service during the war.

During 1946 the Weather Bureau had initiated a program for the treatment of meteorological data by machine methods in four states in the southern United States. The Weather Bureau expanded this program to include the whole country, which will make possible the processing of data to meet the needs of industry and agriculture in their planning operations, and the preparation of improved comprehensive climatological summaries for which there is much demand. At the same time the data will be readily available to meteorologists for research purposes, which removes a long existent barrier that has slowed progress in this field.

INDUSTRIAL METEOROLOGY

Private practice in meteorology, which for the most part began at the end of the Second World War, made little or no progress during 1947. Although there were several private weather services in operation, their activities, most of which are along forecasting lines, did not increase during the year, and several of the organizations were forced to retire from the field for financial reasons. Because of this lack of progress the American Meteorological Society established a Committee on Industrial Meteorology and Climatology to study the problems of the industrial meteorologist and make recommendations regarding action which will stimulate progress in this field.

PUBLICATIONS

No new meteorological textbooks or reference books appeared during the year. The American Meteorological Society initiated a new publication series, known as the *Meteorological Monographs*. Volume 1, Number 1, of this series appeared during the year. The purpose of the Monographs is to provide a medium for the publication of meteorological papers not suitable for the *Journal of Meteorology* or the *Bulletin* of the American Meteorological Society, usually by reason of length.

AMERICAN EXPLORATION

By Robert M. Brown
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BYRD ANTARCTIC EXPEDITION

On April 14, 1947 the U.S.S. *Mount Olympus* reached the United States and terminated the 1946-47 Antarctic Expedition under the leadership of Rear Admiral Richard E. Byrd.

The results of the Expedition include: (1) great gains in the training of Naval personnel, and testing of ships, planes, and other equipment under Antarctic conditions; (2) available reports show 60 successful photographic exploratory flights by the three groups of the expedition; (3) invaluable experience gained in the techniques of building and maintenance of a Polar camp; (4) discovery of unknown and incorrectly charted bays, inlets, glaciers, islands, and mountains; (5) information collected from aerial magnetic survey; (6) amplification of knowledge with respect to hydrographic, geographic, geological, meteorological and electromagnetic propagation conditions; (7) successful use of airborne magnetometer for plotting approximate elevation of land.

One plane, which had taken off from the seaplane tender *Pine Island* on Dec. 20, 1946 on an exploratory flight, was reported missing and was not located until Jan. 11, 1947. Three of the nine Naval personnel aboard the plane had died before the rescue crews arrived.

The expedition discovered two areas which were termed oases, areas of 40 square miles free of ice and dotted with unfrozen lakes and brown earth made up of rugged hills 100 to 150 feet high.

FOLLOW-UP ANTARCTIC EXPEDITION

The United States Navy sent two icebreakers to the Antarctic in the Fall of 1947. The personnel was a task force of the Pacific Fleet and will inspect the Little America area, collect hydrographic data and continue the development of cold weather operating technique. This expedition will be in keeping with the Naval policy to provide continuous training of personnel in the Arctic and Antarctic regions.

ARCTIC

Commander Donald B. Macmillan left Boothbay Harbor, Maine, in June for an 8,000 miles cruise to Greenland. The main object of this expedition was to time the seaward slide of four large glaciers.

Dr. William E. Powers, North Western University geographer, directed operations to measure the speed of the glaciers. The expedition was sponsored by the Chicago Geologic Society. This is Macmillan's twenty-fifth visit to the Arctic.

ALASKA

Bradford Washburn of the New England Museum of Natural History, Boston, with a party of 13, spent 90 days on Mt. McKinley during the spring of 1947. The expedition, called "Operation White Tower," was jointly undertaken by the Boston Museum, RKO Radio Pictures, the Army Air Forces, and the University of Chicago. The basic objectives of the trip, all of which were achieved, were; cosmic ray research for the University of Chicago, surveying for the United States Coast and Geodetic Survey, geological collecting for the United States Geological Survey, weather recording for the United States Weather Bureau, and a complete photograph record for the Boston Museum and RKO.

Three members of the party spent over a month above an altitude of 18,000 feet without oxygen to carry out the cosmic ray observations. Ascent was made of both McKinley peaks, and Mrs. Washburn was the first woman to reach the summit.

MEXICO

The American Museum of Natural History had during 1947 four expeditions in Mexico. Dr. Charles M. Bogert and Mrs. Martha R. Bogert were in the State of Chihuahua to search for a fringe-footed sand lizard and to conduct field experiments on amphibians and reptiles. Boris Malkin journeyed to the States of Guerrero and Oaxaca in southern Mexico to try to discover links between Central Mexican insects and Guatemalan specimens. Dr. and Mrs. Charles Vaurie were assigned to collect specimens and determine the insect faunal relationships between Costa Rica, Guatemala, and southern Mexico. Dr. Mont A. Cazier, Dr. Charles D. Michener, Dr. Willis J. Gertsch, Dr. Herman T. Spieth, and Rudolph J. Schramel conducted a field study of the biology, ecology, and zoo-geography of insects and spiders of Chihuahua and Durango, and collected insects and spiders and deadly specimens of the Durango Scorpion.

CENTRAL AMERICA

The fifth botanical expedition of the Chicago Natural History Museum to Central America got under way Nov. 15, 1946 with the departure of Paul C. Standley, Curator of the

Herbarium, for New Orleans to embark on the steamship *Junior*.

Mr. Standley remained in the field through the greater part of 1947. He made comprehensive collections of the flora of Honduras, El Salvador, and Nicaragua, mostly on the Pacific slope of the countries named. His researches will be the subject of Museum publications in the future. Four previous expeditions by Mr. Standley and Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, explored the 22 departments of Guatemala in pre-war years.

Recent reports indicate that the expedition that Mr. Standley is leading is making substantial progress. Most of the time since he left in November 1946 has been spent in El Salvador and Honduras. Many different locations were visited in those countries and many species hitherto unknown from these areas were found, *e.g.*, a number of species previously known only from Guatemala have thus been added to the flora of Honduras. During the early part of May, the expedition moved to Nicaragua, the least known of the Central American countries. Here, many important discoveries are expected during the course of exploration in the next few months.

Charles Cordier, staff collector of the New York Zoological Society, and Mrs. Cordier were in Costa Rica for nearly five months and brought back 111 specimens, which was considered the most important collection of birds and mammals that the Society had ever received from Central America. Among the rare specimens are a female Yapock, an almost legendary Central American water opossum, the three-wattled Bellbird, a sickle-billed Humming Bird, male bare-necked Umbrella Birds, and Costa Rican Quetzals called the most beautiful birds of the New World.

FISH AND GAME SURVEY IN GUATEMALA

The Smithsonian Institution, the Fish and Wildlife Service of the Department of the Interior, and the State Department are engaged in a survey of the fish and game resources of the Republic of Guatemala, at the request of the Guatemalan government, which to date has brought 28,600 fish specimens to the U. S. National Museum collections.

A major object of the survey is to determine the possibility of introducing game fish of some kind in high mountain lakes. The waters seem highly suitable, but efforts in this direction in the past have proved disastrous to the present limited fish fauna which, although useless to sportsmen, are a food resource of the local population.

The ichthyological survey is being directed by Dr. Robert R. Miller of the Smithsonian staff. Among the curious species obtained are a fresh-water shark and a fresh-water sawfish, both of which may prove to be hitherto unknown varieties. The vast majority of fish of both these groups are found only in salt water. These both came from Lake Yzabal, in the tropical lowlands about 25 miles from the sea.

In the collection also are specimens of a curious fresh-water catfish, the male of which incubates the eggs in its mouth and probably occasionally also cradles the young there. There is considerable evidence, Dr. Miller says, that the baby fish return from time to time to the father's mouth for shelter for some time after they are hatched. During this long period, the male does not eat.

There are also two varieties of a curious eel-like fish—the gymnotus—which has a very curious geographic distribution. Though common in South America, there is a remarkable gap in its distribution from Colombia to Guatemala. These fish are notable for their rudimentary eyes, and probably are nearly blind, for they come out of hiding only at night.

WEST INDIES

Dr. B. E. Dahlgren, Curator Emeritus of Botany in the Chicago Natural History Museum, returned from a five-month excursion to Cuba, undertaken for the purpose of obtaining first-hand observations and material for the study of the many species of palms that are found there.

In his field work on the island, Dr. Dahlgren enjoyed the advantage of the company and collaboration of the distinguished Cuban botanist, Brother León, of Colegio de La Salle, whose unique knowledge of the island has been acquired in the course of a lifelong study of the flora of Cuba, especially of its palms, many of which were unknown to science until discovered and described by him.

The collections and many photographs now made in Cuba will enrich the Museum's palm herbarium and furnish especially desired material for cytological research.

C. V. Morton, Smithsonian Institution associate curator of plants, spent three months at St. Vincent, British West Indies, on a botanical survey. He plans to use the 4,800 specimens that he obtained as a base for a checklist of the flowering plants and ferns of the island.

PHILIPPINES

The Chicago Natural History Museum's zoological expedition in the Philippines under the leadership of Capt. Harry Hoogstraal has collected many specimens of mammals, birds, reptiles, and insects.

Most of the material was gathered in Mount McKinley, Mindanao Island. The group had a base camp in Davao Province at an elevation of 7,200 feet in the cloud zone of Mount McKinley. A survey of the area about Mount Apo was also undertaken.

Captain Hoogstraal reports "we have experienced some very rainy weather, heavy wind storms, and one locust plague at the lower camp which actually broke off the trees, but the locusts were succulent enough to reduce materially the Museum's food expenses for awhile."

BIKINI

A total of 39,000 fish, representing about 250 species, some of which are new to science, were obtained for the Smithsonian Institution collections from the waters around Bikini, site of the atomic bomb test, by Dr. Leonard P. Schultz, Curator of Fishes of the United States National Museum.

Dr. Schultz was one of the biologists of the Bikini expedition, one of his jobs being to determine the lethal effects of the bomb on fish life in nearby waters. A preliminary survey was necessary, during which the collection, which now has been brought back to Washington and is being classified, was made. The Bikini waters, Dr. Schultz found, were rich in a notable variety of fish life. Some of the species collected were quite curious. Among the more interesting animals in the collection are:—Surgeonfishes, Parrot fishes, Goat fishes, Porcupine fishes, Trigger fishes, Squirrel fish, Scorpion fish, and Flying half-beak. In addition there were many real flying fish and a great variety of brilliantly colored butterfly fish, angel fish, and damsel fish.

Dr. J. P. E. Morrison, associate curator of mollusks, who accompanied Dr. Schultz on the Bikini expedition, gave his attention to both the vertebrate and invertebrate animal life of the area except the fish. He obtained specimens and data concerning the arboreal, terrestrial, and intertidal animal communities and populations. Particularly complete was the series of birds frequenting Bikini and the collections of mollusks of this and other of the Marshall Islands group. In June 1947 Dr. Schultz and Dr. Morrison, accompanied by Frederick M. Bayer, assistant curator of marine invertebrates, started on a return trip to Bikini for a resurvey of the faunal elements of the area with which they were particularly concerned.

AFRICA

The third Carpenter Africa Expedition of the Academy of Natural Sciences of Philadelphia began in November, 1947 when William K. Carpenter, the leader, accompanied by Harold T. Green, curator of exhibits, went by air to Nairobi, Kenya. There they will outfit and proceed through Uganda, the Belgian Congo, French Equatorial Africa, French Guinea, and Liberia. The objective is mammal specimens for habitat groups for the Academy's African Hall, motion pictures, and group accessories.

Mr. Carpenter led the second Carpenter Expedition to Africa in 1946, and in 1934 as a young man accompanied his father, R. R. M. Carpenter, on the first Carpenter Africa Expedition for the Academy. The expedition travels in three Chevrolet Trucks and a Chevrolet safari wagon, which were shipped out in July. Mr. Carpenter and Mr. Green are both veterans of the Army Air Forces, Second World War. The expedition will be in the field eight months.

Mr. and Mrs. William J. Morden and Kepler Lewis from the American Museum of Natural History, were in Africa to make extensive collections of ethnological material among some of the rapidly disappearing African tribes (Union of South Africa, southern and northern Rhodesia, Tanganyika Territory and Kenya Colony, Uganda, the Sudan and Egypt).

MISCELLANEOUS

The W. L. Abbott Fund financed three different field parties during the past year: M. A. Carriker, Jr., continuing field work in Colombia, working for half the year in areas complementary to those covered previously, obtaining 1,758 bird skins; Salim Ali of Bombay, collecting birds in Gujerat and other areas in India, supplementing the work of the Smithsonian-Yale University Expedition; and Dr. A. Wetmore and W. M. Perrygo making a trip to the interior of Darien, Panama, returning with 453 bird skins.

The Smithsonian Institution-Yale University Expedition to India, under the direction of Dr. S. Dillon Ripley, assisted by E. C. Migdalski, spent six months in various parts of India and in Nepal, and made a collection of birds which added very significantly to the Institution's resources in the Asiatic field.

Dr. W. F. Foshag and E. P. Henderson finished during the year their assignment in Japan, classifying and evaluating the large collection of gemstones assembled by the 8th Army of Tokyo for which task General MacArthur had requested their services.

OCEANOGRAPHY

By L. P. Disney

U. S. Coast and Geodetic Survey

HYDROGRAPHIC OFFICE

The work of the Division of Oceanography of the U. S. Navy Hydrographic Office during 1947 may be summarized as follows:

1. Preparation of specifications and reporting forms for use by personnel of the U. S. Navy, Merchant Marine, and other governmental and nongovernmental agencies involved in routine operations at sea, or conducting oceanographic research programs. These specifications and reporting forms are designed for the collection of data pertaining to surface temperatures and salinity; vertical distribution of temperature and salinity; sea, swell, and the associated meteorological data; bottom sediments; type, distribution, and movement of sea ice; and biological phenomena of the sea. A recent Special Observer's Log, incorporating the above factors has been designed so that the resulting data can be expeditiously transferred to IBM (International Business Machine) punch cards.

2. Procurement of equipment and personnel for oceanographic programs conducted during Navy sponsored expeditions. The Division was active in the procurement of equipment for various routine and special naval operations and in the procurement of both equipment and personnel for such operations as the 1947 and 1948 Antarctic Development Projects and various expeditions to the Arctic. With respect to the oceanographic equipment, considerable time has

been spent in an effort to standardize and raise the quality of various types of gear.

3. Assistance to non-Navy activities in the planning and implementation of oceanographic programs. Two examples of this type of assistance are the Philippine Fisheries Program (Office of Foreign Affairs, Fish and Wild Life Service) and the Greek Rehabilition Program (UNRRA).

4. Preparation of special reports in response to requests for oceanographic information by Naval and other governmental and non-governmental activities. Specific examples of these reports are "The Effect of the Variations of the Gulf Stream on the Fisheries Industry off the West Coast of Iceland," "The Distribution of Ice in The Antarctic," and a study of the most suitable time during the year to bring caskets through the surf at Iwo Jima. Also, special reports of a classified nature have been prepared for various military activities.

5. Arrangements were made for the publication of technical reports submitted by contracting agencies. Such reports as H.O.Pub. #602, "Wind Waves and Sea; Breakers and Surf" by Bigelow and Edmundson and H.O. Pub. #601, "Wind, Sea, and Swell; Theory of Relations for Forecasting" by Sverdrup and Munk are included in this category.

COAST AND GEODETIC SURVEY

The oceanographic work carried out by the Coast and Geodetic Survey in 1947 has dealt primarily with hydrographic surveys, adaptation of electronic devices to offshore surveying, the publication of a new series of charts, and an expanded program of tide and current investigations.

Hydrographic surveys on the Atlantic and Pacific coasts, together with deep sea sounding lines run by the Bureau ships returning from the Aleutian Islands across the Gulf of Alaska, have disclosed the following oceanographic features and geologic changes: (1) important additional submarine mountain data in the Gulf of Alaska; (2) the extreme flatness of the ocean bottom in the Bering sea north of Attu Island; (3) the continuing northward advance of the tip of Cape Henlopen; (4) shoreline recession on the east side of Chesapeake Bay.

Recent electronic developments were improved and adapted to Survey use during the year. Shoran was successfully used for moderate distances offshore both in the western Aleutians and on the Atlantic Coast. The Coast and Geodetic Survey electronic position indicator, previously developed and tested, was redesigned and rebuilt. With this equipment it will be possible to carry hydrographic surveys for about 200 miles beyond the limits of Shoran, thereby adding to the accuracy and efficiency of oceanographic investigation of the Continental Shelf and beyond.

Good progress was made on the project of charting the Gulf Intracoastal Waterway from Carabelle, Florida to the Mexican border. Seven of the charts have been published, and a number of others are in various stages of completion.

Primary and secondary tide stations were operated at 91 places in the United States and possessions and in foreign areas. A program for obtaining systematic tide observations in the western Pacific was inaugurated in cooperation with the Corps of Engineers. This project will furnish basic tidal data for many of the islands of the Pacific.

Daily readings of temperature and density of the sea water were obtained at 80 tide stations. Although restricted in scope these observations supply valuable data on average monthly temperatures and densities for the locality of the stations.

In the field of currents a comprehensive survey of tidal currents was carried out in Delaware Bay and River and a program of long series of hourly observations at lightship stations was inaugurated in cooperation with the Coast Guard.

The complicated movement of the tidal currents in the northern part of Puget Sound for each hour of the tidal cycle are depicted on tidal current charts for that area recently published by the Coast and Geodetic Survey. Also published during the year was a Seismic Sea Wave Travel Time Chart for the Pacific, centered on Honolulu, which permits a rapid determination of the probable time of arrival of a seismic sea wave originating in the Pacific.

COAST GUARD

No original oceanographic investigations were undertaken by the Coast Guard during 1947. There is now in press the annual reports of International Service of Ice Observations and Ice Patrol in the North Atlantic Ocean for the years 1942 through 1946. This publication will contain qualitative discussions of the ocean circulation in the northwestern Atlantic as observed from berg drifts and ice movements. It is hoped that the oceanographic program in connection with Ice Patrol may be underway by 1948.

SCRIPPS INSTITUTION OF OCEANOGRAPHY

Marine Biology.—Studies in this field have dealt with a variety of subjects, including examination of bacteria in marine sediments and the relation of their activity to the formation of petroleum, investigations dealing with the pigments in marine organisms and taxonomic and ecological work on fishes. Systematic investigation of the sessil marine plants is being started beginning with conditions in the coastal lagoons.

Submarine Geology.—With this field the emphasis has been placed on the study of processes of erosion particularly related to wave action. These studies also comprise examination of longshore and offshore transportation of sand.

Chemical Oceanography. — The work has been primarily directed towards development of instruments for rapid routine analysis. Such methods are becoming more and more needed as work at sea expands.

Physical Oceanography.—Emphasis has been placed on studies of wave motion, including tsunamis, on problems of large-scale diffusion, and on examination of the thermal structure of the surface layers of the sea by means of bathythermograph records. The effect of wind towards maintaining ocean currents is also under examination.

WOODS HOLE OCEANOGRAPHIC INSTITUTION

Hydrography.—Studies of the Gulf Stream were greatly facilitated by the use of LORAN (Long Range Navigation). Prior to the use of this instrument it was difficult to determine the geographical and relative position of the observations while working in or near the current. Large eddies associated with the Gulf Stream were successfully explored, and it was found that currents both in the Gulf Stream and in the eddies were much narrower and swifter than previously supposed. A recent theoretical study of this concentration of the streamlines in the west has shown that this is to be expected as the result of the Coriolis force acting over an area as large as the Atlantic Ocean. Studies similar to those mentioned in the paper, "Average Monthly Sea Surface Temperatures of the Western North Atlantic" (Contribution No. 387), are being made on the temperature at subsurface levels.

Marine Sediments.—During February and March, assisted by a grant from the Geological Society of America, the Atlantic secured 100 long bottom cores from deep water in the Gulf of Mexico and some 500 shorter samples. Some of the published results of this extensive study appeared in *Science* (106, No. 2759, pp. 460-461 Nov. 14, 1947).

Mid-Atlantic Ridge.—The geological, geophysical, and biological problems of the Mid-Atlantic ridge were studied with a grant from the National Geographic Society during a two-months trip in summer. Considerable success was achieved in bringing up samples of rocks from the steep slopes of the ridge. Seismic reflection measurements successfully determined the thickness of sediment on the ocean bottom at many points along the ridge and over much of the track from and to Woods Hole.

Biology.—A project is under way at Barnstable on Cape Cod to experiment in propagating and cultivating clams. Various methods already tried or suggested, including soil improvement and plowing of the soil, are being tested.

The department of microbiology extended the study of the viability of pollution bacteria in sea water. Studies of the New Bedford, Mass. sewer outfall have indicated that the mortality of the bacteria is at least as important as the rate of dilution by sea water in the reduction of the bacteria population.

Studies of the distribution and ecology of the marine bottom invertebrates are continuing. Some of the conclusions to which these studies have led are included in Contribution No. 374.

A general review of the existing information on the plankton of the western North Atlantic and a theoretical analysis of the principles of distribution is nearing completion.

The Scattering Layer.—Observations to check whether fish or shrimp are responsible for the false bottom echo received on ship sonic sounding devices have continued. Controlled experiments have resulted in echoes obtained from schools of shrimp.

Meteorology.—An analysis of low-level temperature and humidity measurements off the New England coast was published and a second paper discussing similar observations made further offshore is nearing completion.

Instruments.—Work is being continued, particularly in connection with devices to measure the electrical conductivity in seawater, for recording and analyzing waves and for measuring the direction and the velocity of ocean currents and depths. A new and improved design of the Spilhaus pressure actuated sea sampler has been completed.

OCEANOGRAPHIC LABORATORIES, UNIVERSITY OF WASHINGTON

The laboratories were more or less disorganized during the war years. They are now in operation but not to full capacity and they are still hampered by the lack of floating equipment. Much time was spent during the year in the preparation of manuscripts on material gathered prior to the war. However, at the present time some of the following studies are underway: 1. Evaluation of phytoplankton in the ocean by chemical means; 2. Study of radioactivity of oceanic bottom deposits; 3. Mineral composition of certain shell fish and various studies on marine vertebrates and invertebrates; 4. Bacteriological studies on the Pacific salmon.

PUBLICATIONS

Publications and papers on oceanography during 1947 are too numerous to include here. Lists of such contributions can be obtained from the Federal Agencies and Oceanographic Institutions covered in this summary.

PERIODICAL PUBLICATIONS

American Mineralogist
450 Ahnaip St., Menasha, Wis.
American Scientist
Yale University, New Haven, Conn.
Bulletin of the Geological Society of America
419 W. 117th St., New York City.
Economic Geography
Clark University, Worcester, Mass.
Economic Geology
Natural History Bldg., Urbana, Ill.
Geographical Review
American Geographical Society, Broadway and 156th Street, New York City.
Journal of Geography
3333 Elston Ave., Chicago, Ill.

Journal of Geology
5750 Ellis Ave., Chicago.
Journal of Geomorphology
Columbia University, New York City.
Journal of Paleontology, The
U. S. National Museum, Washington, D. C.
Journal of Terrestrial Magnetism and Atmospheric Electricity
Johns Hopkins Press, Baltimore.
Mining and Metallurgy
29 West 39th Street, New York City.
National Geographic Magazine
National Geographic Society, Washington, D. C.
Nature Magazine
295 Madison Ave., New York City.
Petroleum World
412 West Sixth Street, Los Angeles, Calif.
Science
Smithsonian Institution Building, Washington, D. C.
Scientific Monthly
Smithsonian Institution Building, Washington, D. C.
Travel
116 East 16th Street, New York City.
Travel America Guide
71 Vanderbilt Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Association for the Advancement of Science, Smithsonian Institution Building, Washington, D. C.
American Assn. of Petroleum Geologists, Box 979, Tulsa, Okla.
American Geographical Society, Broadway at 156th St., New York City.
American Meteorological Society, Blue Hill Observatory, Milton, Mass.
Appalachian Mountain Club, 5 Joy St., Boston, Mass.
Association of American Geographers, University of Minnesota, Minneapolis, Minn.
Explorer's Club, 10 W. 72nd St., New York City.
Geological Society of America, 419 W. 117th St., New York City.
National Geographic Society, 1146 16th St., N.W., Washington, D. C.
Oceanographic Laboratories, University of Washington, Seattle, Wash.
Paleontological Society, The, Johns Hopkins University, Baltimore, Md.
Scripps Institution of Oceanography, La Jolla, Calif.
Seismological Society of America, University of California, Berkeley.
Society of Economic Paleontologists and Mineralogists, University of Illinois, Urbana, Ill.
Woods Hole Oceanographic Institute, Woods Hole, Mass.

DIVISION XXI

CHEMISTRY AND PHYSICS

PHYSICAL CHEMISTRY

By George M. Murphy
Associate Professor, Yale University

GENERAL

The American Chemical Society held its customary two meetings during the year: one in the spring at Atlantic City and, in the fall, in New York. Of interest to the physical chemist, in addition to many of the papers presented at each, were symposiums on the following subjects: chemistry of fission products, liquid phenomena, kinetics of propellants, purity and identification of organic compounds, high polymers, preparation and measurement of isotopes for use in biochemistry, ion-exchange separations. Selection of such topics for discussion is a good indication of the particular branches of the subject currently of interest.

NUCLEAR CHEMISTRY

As was to be expected, the various aspects of nuclear chemistry continue to occupy the attention of many physical chemists, and most of the university laboratories in the country sponsor some types of research in this field. On a larger scale, and as part of its function, the U. S. Atomic Energy Commission has established three laboratories for such studies. These are the Argonne National Laboratory at Chicago; the Brookhaven National Laboratory at Upton, L. I., and the Radiation Laboratory at the University of California. Other installations at Oak Ridge, Tenn., Hanford, Wash.; Los Alamos, N. M., and elsewhere continue in operation.

Radioisotopes, necessary for nuclear investigations, are available from the Atomic Energy Commission, and it has been announced that, after one year of this service, nearly 1,100 samples of more than 100 different isotopes have been supplied. Stable isotopes are also available from the same source. Separation is effected by electro-magnetic means, and more than 111 different nuclear species of 26 elements have been prepared.

A new journal in this field, entitled *Nucleonics,* made its appearance in September. It is devoted not only to chemistry and physics but also to biology, health physics, engineering, and technology. The existing issues of it contain papers of a review nature which should be useful for orientation purposes and to those who are relatively inexperienced in the field. For example, Coryell (Mass. Inst. of Tech.), in the October issue, reviewed techniques and accomplishments of nuclear chemistry, pointed out the importance of the subject for the nuclear power industry, and suggested fundamental problems for further exploration.

RADIATION AND PHOTOCHEMISTRY

The effect of radiation on chemical reaction has, in the past, been mostly studied with optical wave-lengths and techniques. Closely related is the effect of nuclear radiations such as neutrons, gamma rays, and nuclear particles. A review of this entire field was the subject of a symposium at

The University of Notre Dame, held in June, with 18 speakers on the program.

A separate review of photochemistry was given by W. A. Noyes, Jr. as the Presidential Address of The American Chemical Society at the New York meeting. The field of radiation chemistry alone is discussed by Burton (*J. Phys. and Colloid Chem.*, March 1947). The latter case is somewhat different from the former in that the available energies are so large with respect to chemical bond energies that bond rupture nearly always occurs. The nature of such recoil excitations and the kinetics of the situation are reviewed by Libby (University of Chicago).

RADIOELEMENTS IN NATURE

In addition to the well-known radioactive elements such as radium, uranium, thorium, and others, certain other long-lived radioelements occur in nature. It is certain that isotopes of potassium, rubidium, samarium, lutecium, and osmium belong in this class, and the existence of others (cadmium, indium, antimony, for example) may be inferred theoretically. A recent remeasurement of the half-life of radio potassium reduces that value by a factor of about seven and therefore increases its rate of energy production on the earth by the same amount. If substantiated, certain geochemical and geophysical conclusions must be re-examined. As a typical example, the period of duration of the earth's permanent crust must be decreased by about 1,000,000,000 years.

Every element with atomic number between 0 and 96 seems now definitely established, but nine of them are so radioactive that they have nearly or completely disappeared from the earth. The possibility of elements with atomic number greater than 96 is not excluded, but they will probably be difficult to prepare and study. Previous claims to the discovery of these elements are now generally regarded as untenable, but production of them in nuclear reactors or by nuclear reactions has resulted in considerable knowledge of their chemistry. Names assigned to them with their atomic numbers are as follows: the neutron, 0; technetium, 43; cyclonium or prometheum, 61; astatine, 85; francium, 87; neptunium, 93; plutonium, 94; americium, 95; curium, 96.

The possibility that elements are being constantly synthesized on the earth, due to the action of cosmic radiation, has been frequently discussed. One example is the formation of radiocarbon from a neutron reaction with atmospheric nitrogen. This has been detected by Libby, Grosse, and coworkers (University of Chicago and Holudry Process Corporation). Assuming that living carbon compounds would differ in radioactivity from similar compounds, which had been buried for times long compared with the 5,000 year half-life of radiocarbon, they compared the activity of biomethane, obtained from a city sewage disposal plant, with petromethane from oil wells. The former showed about 10 more disintegrations per minute per gram of carbon than the latter, corresponding to about 10^{-12} grams of radiocarbon per gram of carbon, or about 20 metric tons of radiocarbon on the earth. It is believed that the method can be extended so that carbonaceous material as old as 40,000 years may be detected and dated as to age. Such results would be of great interest to geologists and biologists.

Other radioelements are certainly formed in a similar way but Eidinoff (Queen's College) has shown that, if tritium, radioactive hydrogen, occurs in water, its abundance is less than one part in 10^{17}.

ION-EXCHANGE ADSORPTION

Chromatographic adsorption is becoming increasingly useful for the separation of mixtures difficult to resolve by ordinary chemical means. One application has been made at the National Bureau of Standards where a column, 16 meters long and filled with silica gel, has been used to separate synthetic mixtures of hydrocarbons and the kerosene fraction of petroleum.

The method has also been used to separate rare earths by Spedding and coworkers (Iowa State College) and by Boyd, Cohn, Tompkins, and others (Clinton National Laboratory). Such separations, long recognized as among the most difficult ones in inorganic chemistry, became of importance in the atomic bomb project since rare earth elements were among the major constituents of the fission products. The procedure used for this purpose is as follows: the rare earth mixture is completely adsorbed on a column of ion-exchange resin; elution from the column is effected by a complexing solution of citric acid, buffered with ammonia at a fixed pH; successive fractions of the eluate are collected, the least basic rare earths (those of higher atomic weight) being removed from the column first. Repetition of the process furnishes separated rare earths of purity greater than 99 per cent.

The method was investigated by radioactive tracer techniques, and among the process variables so studied were pH, flow rate, and concentration of the buffer solution; area and length of the adsorption column; concentration and maximum total amount of adsorbable rare earth mixture; particle size and composition of the resin; operation temperature. By suitably fixing all of these variables at conditions approximating an optimum, Spedding's group has succeeded in securing several kilograms of pure products. While the exchange process is vastly superior to classical rare earth separation methods of fractional crystallization, it should be noted that batch operation is necessary (maximum mixture adsorbable on the largest column used is 100 grams); large quantities of eluant are used (5 kilograms per 100 grams of rare earth); separation is slow (30-60 days). These objections to the method may be partly removed when further knowledge of the process is obtained.

Theoretical explanations of the adsorption mechanism together with an account of the experimental results, have been given in 12 papers presented at the New York meeting of the American Chemical Society (*J. Am. Chem. Soc.,* Nov. 1947).

MOLECULAR STRUCTURE AND SPECTROSCOPY

Accounts of the status and recent achievements in the field of molecular structure and forces were given by Kistiakowsky (Harvard University), when he received The Nichols Medal, and by Pauling (California Institute of Technology) in the Richards Medal lecture at Cambridge and in a Silliman lecture at Yale. Both lecturers were especially stimulating in their references to unsolved problems.

One of the most powerful techniques in such problems is that of molecular spectroscopy since it not only gives information as to internuclear forces and distances but also the exact numerical thermodynamic data, so useful to the physical chemist. Unfortunately, the complicated polyatomic molecules of most interest have such complex spectra that they are difficult to understand. A symposium on molecules of this sort, especially with reference to their color, summarizes present knowledge of them (*Chem. Reviews,* Oct. 1947).

A relatively simple part of the spectrum is that due to pure rotation of the molecule but because of optical difficulties in the far infrared when these spectra occur, the region has been almost inaccessible to experiment. Wartime developments in radar and electronics now allow such measurements to be made with more ease, and considerable work in this field appeared during the year.

Known as microwave spectrometry, the wavelengths employed are around 1 cm., and several variations of the apparatus have been constructed or proposed. Laboratories from which the work is appearing include those of Harvard, Ohio State, Duke, Westinghouse, and Bell Telephone. A number of different molecules have been studied. The results yield molecular shapes, internuclear distances, moments of inertia, isotope effects, nuclear spins, and quadruple moments. Certain anomalous effects and splitting of the spectral lines have been explained theoretically with almost complete success.

Some of these effects may also be obtained by the molecular beam-magnetic resonance and by the nuclear induction methods, both of which have been further studied and modified during the year. However, it appears that the microwave spectra will be the most generally useful for determination of nuclear spins. This is particularly true for the case of artificially radioactive elements, where the small samples available and other limitations will make the experiments difficult in any case.

DIFFUSION

When two or more different gases mix by molecular diffusion, the situation is theoretically somewhat complex. A simpler case is that of the diffusion of a gas into itself, and here tagged molecules are experimentally essential. This phenomenon has been studied for both uranium hexafluoride and methane (University of Virginia). Tagging was effected by the use of separated isotopes and analysis by the mass spectrometer. Similar experiments with argon (Yale University) used radioargon as tracer and counting methods for analysis. Such results furnish information on intermolecular force laws.

For solutions, the interesting cases are diffusional flow between two different concentrations of solute, either with or without a permeable separating membrane. Reviews of these aspects of diffusion have been given by Harned, Yale University (*Chem. Reviews*, June) and by Dean, University of Hawaii (*Chem. Reviews*, December). Radioactive techniques, with radiosodium, are used by Adamson (Univ. of Southern Calif.) and by Robinson and Drew (Howard University). This method has the advantage that it may be extended to diluter solutions than those studied by other methods. It is also one of the few possible means for investigating individual in behavior.

An optical method, involving the measurement of interference fringes, has been further developed experimentally by Longsworth (Rockefeller Institute) and theoretically by Kegeles and Gosting (Univ. of Wisconsin). The method may be used for electrolytic solutions and also for the study of proteins.

Another method, devised by Harned, utilizes a carefully machined lucite cell, designed according to theoretical requirements. The diffusion coefficient is determined by conductance measurements at two pairs of electrodes and the precision attained is 0.1 per cent. Previous methods have been much less sensitive, and thus it is now possible for the first time to make reliable comparisons of the theory with experiment.

PHYSICS

By Thomas H. Osgood

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GENERAL

In reviewing the Physics literature of the year 1947 it is desirable to distinguish between what is novel, in the sense of having been discovered recently, and what is new, in the sense of having been released for publication by those responsible for preservation of security in connection with researches conducted during the Second World War. A very large part of the confidential scientific work carried out during the war has now been "declassified." In the field of nuclear physics there remain on the secret list some numerical constants which might help anyone engaged in the preparation of atomic bombs.

Recently published is a series of papers on delayed neutrons created during the process of fission, a subject of great importance in the design of chain reacting piles, but the date of the work itself is 1942-44.

ACCELERATING MACHINES

To the reader who keeps abreast of current trends in physical science, the terms cyclotron and betatron are already familiar. They denote machines for the acceleration of atomic particles to velocities approaching that of light. The cyclotron was devised to handle ions such as protons, deuterons, and alpha particles; the betatron accelerates only the much less massive electrons.

Modifications of these two instruments have been discussed theoretically in the literature for nearly two years, with the purpose of creating beams of particles of greater energy than the standard instruments could attain. The modification consists in adding the synchrotron principle, often called the principle of phase stability, to the machines in their conventional form, following an idea suggested independently by V. Veksler in Russia and by E. M. McMillan in the United States. The modified instruments are now called synchrotrons when their use is restricted to electron acceleration, and synchro-cyclotrons when the design is for the acceleration of ions only. The most notable example of the latter type is the 184-inch instrument in the Radiation Laboratory of the University of California. The 184-inch dimension indicates the diameter of the two circular pole pieces.

Although this instrument was originally planned as a conventional cyclotron, it has been adapted to the synchro-cyclotron principle, and the latest developments are contained in two important papers appearing in the *Physical Review.* The first of these, by D. Bohm and L. L. Foldy (*Physical Rev.* 72, 649) treats the theoretical aspects of the problem of starting an ion beam in the accelerating chamber. The second, by W. M. Brobeck, E. O. Lawrence, K. R. MacKenzie, E. M. McMillan, R. Serber, D. C. Sewell, K. M. Simpson, and R. L. Thornton (*Physical Rev.*, 71, 449) records the initial performance of the instrument. That the work of eight scientists can be recorded within the limits of a two-page article is merely a sign that modern physics deals with such large and complex machines that a whole team is required to design, adjust, and maintain each of them.

The principle of phase-stability is applied to the 184-inch cyclotron by modulating, or varying continuously over a range of about 20 per cent, the frequency of the high voltage applied to the dees. This is accomplished by including in the resonant circuit a rotating electrical condenser which can be operated up to 2000 cycles per second, though this maximum rate of modulation has not yet been needed.

Tests have been made with hydrogen ions (protons) and with helium ions (alpha particles), and though direct measurements of the energies reached have not been made, it is expected that these will reach 195 and 390 million electron volts respectively. The latter figure is exactly twice the former on account of the double charge carried by the alpha particle. The energies fall in the range which is theoretically needed to carry out systematic experiments on the production of mesons. Since knowledge of the meson's properties appears, at the moment, to be the key to a proper understanding of the forces in the nucleus, reports of experiments, planned or performed with particles from the synchro-cyclotron are awaited eagerly.

Although the pole pieces are 184 inches in diameter, it has not yet been possible, with this large instrument, to use the whole of the inter-polar volume effectively. For a variety of reasons, difficulties occur in keeping the ion beam up to full strength as it spirals outward from the center of the dees. These difficulties have not yet been overcome completely. The ion beam is good as far as a diameter of 80 inches, after which it falls rapidly, and is lost at 164 inches.

Other important accelerating machines, whose construction was planned or under way in 1946, are not yet reported complete. But these machines take so long to build that it is almost necessary to plan the next one before the previous one has been put through its paces. Columbia University is currently busy with preliminary work on a 450 million-volt synchro-cyclotron, and larger instruments of the "race-track" variety are being designed to reach the billion volt mark.

THE URANIUM PILE

The active material of an atomic bomb, either uranium 235 or plutonium, must be separated or manufactured in pure form from natural uranium. During the Second World War the preparation of these materials on a military scale was carried on only in the United States although scientists of other nationalities were called in to help. Plutonium is one of the final products created in a chain-reacting pile, usually of uranium and graphite. Since 1945, Great Britain has set up her own Atomic Energy Research Establishment at Harwell, where a uranium-graphite pile was operated for the first time in Europe in August 1947. An account of this event under the encouraging title "Peaceful Applications of Nuclear Fission" was carried by *Nature* (160, 451, 1947) in the form of a report of speeches made by J. D. Cockroft and others at the British Association Meeting in Dundee. Cockroft, the director of the Establishment, emphasized that the pile is a potential though not a certain new source of power for the world. The low-power pile of Harwell, designed for experimental work only, contains several hundred tons of graphite, and probably a few tens of tons of uranium. So dense is uranium, however, that only about one per cent by volume is composed of that metal. Surrounding it is a concrete shield about five feet thick. Loading the pile, which means inserting uranium in spaces purposely left in the graphite, occupied ten days. During loading, the neutron flux increased steadily, and towards the end, very rapidly, as the multiplication constant increased towards the critical value, unity. The course of the neutron multiplication can best be judged by the neutron flux registered by a counter inside the pile. After two days, with seven tons of uranium loaded, the count was 17 per minute; four days later, 55 per minute; a few hours before completion, 2,400 per minute; and at the threshold of the critical stage, 6,600 per minute. The pile was then tamed by inserting the necessary control rods of cadmium, or boron-carrying material. At this stage only 0.1 watt of heat was generated in the whole enormous pile. From this point, the pile would, if left to itself, climb exponentially but very slowly to higher power levels on account of the cumulative effect of delayed neutrons which accompany fission. Later, the power was intentionally increased to 100 watts, whereupon the pile was shut down, having achieved its maiden multiplication successfully.

In the future it is planned to raise the power level of this pile to something of the order of 50 kilowatts. Under these conditions there will be at the center a neutron flux of one billion per square cm per second, of which one per cent will be available for making radioisotopes for scientific work. The other 99 per cent are required to keep the pile going. Despite its great mass, a pile is remarkably sensitive. Cockroft reports that introducing one-tenth of a milligram (one five millionth of a pound) of cadmium makes a detectable difference in the power level. Cadmium is, however, one of the most powerful inhibitors known.

A second pile for the study of power production is to be built at Harwell, using uranium sheathed in aluminum, to prevent oxidation and escape of fission products. The presence of aluminum sets a serious limitation on the use of a pile for power production (*via* steam) since it is thermodynamically impossible with ordinary condensers to achieve high efficiency in a steam turbine operated at a temperature low enough to preserve the essential properties of the aluminum sheathing. This second pile is planned for 1000 kw, which will permit about 1 gm of useful fission products to be manufactured per day as a side-line.

NEUTRONS

Information describing the interaction of neutrons with matter is often given in terms of cross-sections. A neutron cross section of (say) gold represents the effective target area which one atom of gold presents to oncoming neutrons. Typical cross sections lie between 10^{-21} and 10^{-24} cm^2 per atom. The values, however, vary enormously from element to element, and are strongly dependent upon the velocity of the neutrons. The most important recent publications on this subject deal mainly with comparatively slow neutrons, in the energy range 0-100 electron volts. Emphasis has been placed on slow neutrons since 1940 partly because it is upon these that the action of the chain-reacting uranium pile depends, and partly because nuclear transmutations in general are usually carried out more readily with slow than with fast neutrons.

Since the variation of cross section with neutron-speed is often very rapid, it is desirable to carry out experiments with beams of neutrons identical, or very nearly identical, in energy. There are now several standard methods of achieving this. Oldest is the time-of-flight method extensively used for many years at Columbia University, and by which William B. Jones, Jr. (*Physical Rev.* 72, 362) at Cornell University recently measured cross sections in iodine. The method requires a cyclotron with which neutrons are produced and is useful from 0 to 500 electron volts energy. If the cyclotron is suddenly shut off, then neutrons will cease to be generated, and the last ones will arrive at a collector several meters away at different times, depending on their speed, the slowest ones arriving last. By means of complicated electronic timing circuits, it is possible to count those neutrons which arrive at the collector at certain times, and to discover how the proportions vary when some substance to be tested is put in the neutron beam close to the source. William B. Jones, Jr. found, for example, that the cross section of iodine was about 5×10^{-24} cm^2 per atom at 15, 25, and 50 electron volts energy, but in between, at 20 and 35 electron volts, the values were many times as great. These high values at certain energies indicate "resonances," or energies at which the iodine nucleus is an especially easy mark for the approaching neutron.

So-called thermal neutrons, moving with speeds comparable to those of gas molecules at ordinary temperatures, have been studied extensively with mechanical velocity selectors. This is possible because they move so slowly. A typical velocity selector is the one used by E. Fermi, J. Marshall and L. Marshall (*Physical Rev.* 72, 193). A velocity selector must contain a shutter which operates in such a way as to let short bursts of neutrons pass through. The shutter in this case consisted of a multiple sandwich of thin cadmium sheets and aluminum sheets which could be rotated at high speed about an axis passing through the middle and parallel to all the layers. For neutrons possessing effective temperatures of the order of a few hundred degrees, like those emerging from a hole in a graphite pile, aluminum is practically transparent, while cadmium is an excellent absorber. Slow neutrons could therefore pass through the sandwich only while its layers were parallel to the flow of neutrons from the pile. At other times while the shutter was being rotated, no neutrons could pass.

About 1.5 meters from the shutter, neutron counters were set up in the line of flight of the particles. These were arranged to be active only for a prearranged short period at a controlled time interval after the shutter was in the open position. Thus the counters could, within limits, record neutrons which had required any desired time interval to pass from the shutter to the counter; that is, neutrons of specific velocities could be investigated. When a comparatively small piece of new material was introduced into the path of the beam of neutrons just in front of the shutter, then certain changes occurred in the relative numbers of neutrons of different classes which reached the counters. On the basis of such measurements it was not difficult to calculate the cross section or effective target area per atom of the materials investigated. Boron, for example, turned out to have a cross section of 700×10^{-24} cm^2 per atom for neutrons of velocity 2,200 meters per second. This corresponds to a temperature of 20° centigrade.

The velocity selector just described was elaborated and improved by T. Brill and H. V. Lichtenberger (*Physical Rev.* 72, 585). With it they measured cross sections of gold and some rare earth metals over the range 0.003 to 0.2 electron volt, corresponding to velocities from 800 to 6,000 meters per second. Over this range the cross sections of gadolinium varied from 1.2×10^{-19} cm^2 per atom to 2×10^{-21} cm^2 per atom, illustrating the general rule that the slower a neutron moves, the more likely it is to interact with a nucleus.

In accordance with wave-mechanics, any mass-particle in motion has associated with it a wave length given by the relation $\lambda = h/mv$, where λ is the wavelength, h is Planck's constant of action, m is the mass of the particle, and v its velocity. It happens that for neutrons of moderately low energy, not more than a few electron volts, the wave lengths are of the same magnitude as those of x-rays. Consequently the diffraction of neutrons, and the production of beams of monochromatic neutrons can be accomplished by crystal reflection. Two important types of x-ray spectrometer, the Bragg type, and the Cauchois focusing type have been adapted for use with neutrons. With the former, William J. Strum (*Physical Rev.* 71, 757) has measured cross sections for more than half a dozen elements, using the powerful beam of neutrons from the heavy water pile of the Argonne National Laboratory. On the other hand, the Cauchois focusing instrument, furnished in this case with a bent sodium chloride crystal, has been used at the Clinton Laboratories at Oak Ridge by R. B. Sawyer, E. O. Wollan, S. Bernstein, and K. C. Peterson for much the same kind of studies. Further work needs to be done, for where the work of these two laboratories overlaps on this subject, there is qualitative but not quantitative agreement in the results.

No techniques are yet available for handling neutrons of energies between fifty thousand and a million electron volts with the delicacy of the work which has been done on slow neutrons. Yet this region is full of interest, and its exploration will lead to a better knowledge of energy levels within the nucleus. An introduction to what has already been accomplished can be found in a paper by L. W. Seagondollar and H. H. Barschall (*Physical Rev.* 72, 439) in which the cross section of aluminum is reported for neutrons up to 1 Mev. In this range, no fewer than ten peaks occur, the cross section varying up and down by 40 or 50 per cent from an average value of about 4×10^{-24} cm^2 per atom. These values, it may be noted, are thousands of times smaller than those for slow neutrons for gadolinium. Each of the peaks mentioned represents a condition at which the aluminum nucleus shows a preference for catching neutrons, or at least diverting them from their straight flight. Heavier elements than aluminum might be expected to respond to passing neutrons in an even more complex fashion.

MESONS

In 1946 there was some evidence that mesons which were observed by their tracks in cloud-chambers possessed a variety of masses ranging from about 20 to 200 electron masses. A careful examination of the possible errors of interpretation arising in cloud-chamber measurements, and some experiments of William B. Fretter (*Physical Rev.* 70, 625) show that the evidence was misleading. Fretter photographed the same mesons in two cloud chambers, one traversed by a magnetic field, the other obstructed by a series of absorbing lead plates. By combining measurements in pictures of both chambers, he concluded that the mesons encountered in his experiment had a unique mass, 202 times the rest mass of the electron. This, however, is far from being the last word of the story of mesons.

A group of workers at the University of Bristol (*Nature,* 160, 453) has been carrying out a program of cosmic ray particle research by making mosaic microphotographs of the tracks of particles formed in photographic plates exposed to cosmic rays. They have shown that charged mesons, brought to rest in the emulsion, commonly lead to the production of secondary mesons, all of which appear to have identical masses, and to be produced with identical initial kinetic energies. A significant difference in grain spacing along the tracks is found for the primary and secondary mesons. From their observations the group at Bristol feel obliged to dismiss as untenable the explanation that the secondary mesons are produced as a result of spontaneous decay of the primary meson, during which process a photon or neutrino would be emitted. They incline to the view that the tracks they have been examining are caused by mesons emitted at the same time as other neutral particles of about 200 electron masses.

SEPARATION OF ISOTOPES

For the furtherance of detailed knowledge of nuclear structure it is necessary to study nuclear species singly. This often involves the separation of isotopes of the same element, a separation which can not be achieved by chemical methods, but which can be achieved by established electromagnetic or diffusion processes either in very small quantities or with tremendous effort. New schemes for the separation of isotopes are, therefore, of considerable interest even if their application is initially somewhat limited in range. A novel method of isotopic separation of He^3 and He^4 is described by J. G. Daunt, R. E. Probst, H. L. Johnston, L. T. Aldrich and A. O. Nier (*Physical Rev.,* 72, 502).

Liquid helium II (the Roman numeral refers not to atomic mass but to a special phase in the thermodynamic sense) is the most remarkable liquid known. Among its unusual properties, it possesses an ability to creep over surfaces in invisible thin films, even without benefit of gravitational potential energy, at an astonishing rate. The literature describes this as super-fluid flow through a supra-surface film. It occurred to the five investigators that if, as J. Franck suggested, only common He^4 atoms play a part in super-fluid flow, then He^3 atoms would be left behind in a vessel from which liquid He^4 II had been abstracted by flow along a supra-surface film. Accordingly they prepared a small glass vessel, closed it with a ground stopper, and placed it inside another vessel so that its lower part only was immersed in liquid helium II contained therein. All this had to be done, of course, below the λ-point, close to 2° K. The superfluid was able to flow through the narrow channel between the male and female parts of the stopper, which nevertheless was an effective seal against the return of any vapor. All that remained to be done was then to measure, with a mass-spectrometer, the isotopic constitution of the liquid which collected in the inner vessel. The investigators found that this helium, after having been processed by super-fluid flow, contained only He^4 atoms. The original supply, therefore, must have been left with a correspondingly increased number of He^3 atoms. Not only does this experiment prove, within the limits of measurement, that He^3 does not partake of superfluid flow at the temperatures at which He II is ordinarily manipulated, but it explains certain uncoordinated results previously obtained by two groups of experimenters who measured the isotopic ratio of He^3/He^4 above and below the λ-point. The clue to the difficulty is that a certain amount of super-fluid flow and subsequent evaporation must necessarily take place in most experiments dealing with liquid helium II, thus changing somewhat the proportion of He^3 atoms present.

THE UPPER ATMOSPHERE

German V-2 high altitude rockets were fired from time to time in 1946 and 1947 by the Ordnance Department, United States Army, at its proving grounds, White Sands, New Mexico. Physicists of the Naval Research Laboratory have been able to take advantage of these flights to explore the upper atmosphere with more accuracy than was possible heretofore. Pressure and temperature, solar radiation, and cosmic ray intensity have been studied particularly. Some new data relating to the first two items are summarized here.

To cover the range of pressures between ground level and 120 km, three types of gauges were required—bellows gauges, useful from normal atmospheric pressure to 1.0 cm. of mercury, Pirani gauges, from 2 mm. to 10^{-2} mm. of mercury, and Philips gauges for still lower pressures. In agreement with theory, the logarithm of the reciprocal of the pressure was found by N. Best, R. Havens, and H. LaGow (*Physical Rev.* 71, 915) to be proportional to the altitude. Indications of a slight departure from this linear relation were found between 50 and 70 km. At 120 km. the atmospheric pressure is only one ten millionth of its value at sea level.

Temperatures were estimated by the same authors from the known relationships among the uncorrected readings of the various pressure measuring instruments used, and the results were compared with data taken from "Tentative Tables for the Properties of the Upper Atmosphere," a 1947 publication of the National Advisory Committee for Aeronautics. These tables are apparently reliable to 50 km. At higher levels the new experiments gave values varying from 30 to 50 degrees C. lower than the N.A.C.A. estimated mean temperatures. As is well known, the temperature does not fall steadily with increasing altitude. There is a minimum (—60° C.) at about 25 km., a maximum (+60° C.) at 50 km, and another minimum (—80°) at 80 km, and thereafter a steady increase.

This curious variation of temperature with altitude is, of course, connected with the absorption of solar radiation. A group of workers at the Naval Research Laboratory have published spectrograms (*Physical Rev.* 70, 781) obtained with a rugged, specially built grating spectrograph which was recovered from the debris of the rocket fired on Oct. 10, 1946. As the rocket rose to higher and higher altitudes, the solar spectrum extended farther and farther into the ultra-violet. At 55 km. there was a faint record even at wave lengths somewhat shorter than 2,200 A. At 34 km. the spectrum was recorded above and below the region of the strong ozone absorption band at about 2,400 A, but none at the position of the band itself. In rising another 21 km, the rocket left enough of the atmospheric ozone behind it to make a continuous record throughout this Hartley band. A complete analysis of the spectra will provide information concerning the distribution of ozone and other absorbing gases in the atmosphere.

Later experiments in a rocket flight on March 7, 1947 supplied spectrograms with much better resolution than in the first trial. In these, about 300 regions or lines of absorption were decipherable the majority of them due to iron in the sun's atmosphere. Such a record at 75 km gives a truer spectrum of solar radiation than has ever been photographed before.

A NEW COUNTER

Individual charged particles of high energy, and gamma rays are usually detected electrically by tube counters through which the particles can travel completely. Alpha particles of moderate energy, on account of their low penetrating power, must be permitted to enter through a special thin window, or else the alpha-emitting material must be put inside the counter.

A simpler alpha particle counter would be a great convenience.

Following an unsuccessful experiment of Van Heerdeen (1945), D. E. Wooldridge, A. J. Ahearn, and J. A. Burton (*Physical Rev.* 71, 913) bombarded a small diamond with alpha particles, and arranged two separate electrodes in intimate contact with the diamond surface. A potential difference was maintained between these two electrodes, forming part of a circuit whose output was fed to a cathode ray oscilloscope. They found that good pulses were obtained. In one series of experiments they bombarded with alpha particles a clean strip of diamond surface only 0.003 cm wide between two evaporated metal areas which formed the electrodes. Only five volts were needed to produce pulses across this gap. In another arrangement, they obtained pulses with 100 volts between evaporated films on opposite sides of a diamond 0.5 mm thick. Only selected diamonds reacted in this way. In the former case, the conductivity was a surface phenomenon; in the latter, apparently a volume effect. If the counter turns out to be reliable, it will be a very convenient accessory in laboratories devoted to the study of nuclear physics.

L. F. Curtis and B. W. Brown (*Physical Rev.* 72, 643) have given diamonds a trial as gamma ray counters. Each crystal was held in a simple compression mounting between two metal electrodes pressed against opposite crystal faces. No evaporated films were used. On irradiation with gamma rays from radium, two diamonds out of about one hundred of the industrial variety were found to give adequate pulses for counting. Since the absorption of gamma rays per unit area of target surface in a piece of diamond is greater than in a conventional tube counter, further development of this technique appears desirable.

ORGANIC AND INORGANIC CHEMISTRY

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AMERICAN CHEMICAL SOCIETY

The increasing importance of science in American civilization is well illustrated by the remarkable and continued growth of the American Chemical Society. Some 55,000 members are now on its rolls, and the meeting of the society in New York last September was attended by a record of 11,000 persons. If the plans for future expansion of scientific activities in the United States follow the program outlined by Mr. Steelman in his report to President Truman one may expect the Society to double again in size by 1960. This report advocates a national expenditure of 1 per cent of income on research amounting to $2,000,000,000 per year by 1957. Present research expenditures are only one half of this.

PUBLICATION PROBLEMS

This tremendous and growing membership brings with it serious problems in the publication field particularly during a period of paper shortage with which we are still afflicted. Hence every journal is filled with papers to the limits of its resources, and backlogs indicating delay are being accumulated. It is clear that facilities for publication of papers must be further expanded within the society or groups of its members will take steps to provide such facilities in other ways. It may be necessary to obtain aid from the National Science Foundation or other government source before the problem is adequately solved. Since, however, government subsidy might develop into a measure of control it seems undesirable to ask for this help except as a last resort. The number of pages in the *Journal of the American Chemical Society* is running about 20 per cent above 1946 but this is still below prewar years and is clearly inadequate in view of the increased number of chemists doing research work.

Publication difficulties are much more serious abroad than in the United States, and the resulting lack of exchange of ideas between scientists on an international basis constitutes a serious handicap to research. Discussion of this problem is frequent in scientific circles. (See editorial, *Industrial and Engineering Chemistry,* September, 1947).

ATOMIC WEIGHTS

An indication of renewed international cooperation is the Thirteenth Report of the Committee on Atomic Weights of the International Union of Chemistry which appeared in 1947, the first report since 1943. However, changes in atomic weight values now occur rather infrequently and then are small. The 1947 Atomic Weights Table changes the value of copper from 63.57 to 63.54 and that of sulfur from 32.06 to 32.066. The atomic weights for the four new elements synthesized by radioactive means, namely neptunium, plutonium, curium, and americium have not yet been officially assigned.

FLUORINE CHEMISTRY

The impetus given to fluorine chemistry by certain projects related to the war effort is still in evidence through publications and new products. An interesting new compound, fluorine perchlorate, has been described by Cady (University of Washington). It is formed as a gas by the action of fluorine upon perchloric acid. Liquefaction occurs at —16° C. but usually an attempt to freeze the liquid results in an explosion. This property is a most unusual one. Explosion of the gas also results from a small flame or spark, or when it comes into contact with specks of dirt, rubber tubing, and other miscellaneous materials. Reaction with aqueous alkali yields oxygen gas.

Another interesting fluorine compound, fluorine trichloride, has recently been made commercially available. The extent of its industrial usefulness remains to be determined.

LITHIUM ALUMINUM HYDRIDE

An interesting and useful new hydride is obtained when lithium hydride and aluminum chloride are allowed to react in ether solution (Finholt, Bond and Schlesinger, University of Chicago). The product, lithium aluminum hydride, can be isolated free of ether, whereas aluminum hydride itself is unstable. Lithium gallium hydride may be obtained by a similar procedure. Sodium and calcium aluminum hydrides have been made but not yet described in the literature. The existence of these new hydrides raises a number of interesting questions regarding valence bonds, but in addition, lithium aluminum hydride gives promise of being a useful reagent in effecting reduction reactions hitherto impossible or impractical. The hydrides of silicon (silane) and tin (stannane), as well as alkyl derivatives, become more readily available; the previously unknown hydrides of zinc and beryllium have now been made in easily controlled reactions. Perhaps more important are the results obtained in organic chemistry. Even carbon dioxide is reduced to formaldehyde. Carboxylic acids, (Nystrom and Brown, University of Chicago), as well as acid chlorides, anhydrides, and esters are converted to alcohols. Aldehydes, ketones, nitriles and nitro compounds also undergo reduction. On the other hand, many olefinic bonds are not attacked, making possible interesting specific reduction reactions of unsaturated compounds containing other functional groups. The results obtained are somewhat similar to those from the action of sodium and alcohol but the reaction conditions are more convenient. Amino and hydroxy groups already present do not interfere with the reaction.

URANIUM HYDRIDE

The revival of interest in uranium chemistry has led to interesting observations regarding this element. Rundle (Iowa State College) reports that uranium forms a definite compound, UH_3, with hydrogen. This hydride does not seem to fall in the three known classes of these compounds. It has metallic properties, yet is unlike the known crystalline forms of uranium. The melting point has not been determined but is certainly above 600°; unlike the metal itself the hydride is brittle. Rundle proposes that the compound is held in the crystalline state by hydrogen atoms acting as bridges between uranium atoms. It is suggested that other metallic hydrides, which have similar properties, may be found. In a detailed report (Burke and Smith, Los Alamos Scientific Laboratory) on the method for preparing the hydride, a temperature of around 225° was shown to be optimum. Dissociation of uranium hydride into its elements is complete at atmospheric pressure at 425°.

GERMANIUM COMPOUNDS

The recent rapid development which has occurred in the industrial utilization of silicon compounds has stimulated interest in germanium, another element of group IV of the periodic system. Rochow (General Electric Company), who was a pioneer in the development of industrial organic silicon derivatives, has now reported on a method for preparing organogermanium halides from the action of alkyl halides with metallic germanium. The presence of reduced copper greatly facilitates the reaction just as it does the corresponding reaction involving silicon. The chemistry of germanium compounds is in too elementary a state for any prediction to be made as to possible utility of organogermanium compounds.

INDUSTRIAL OXYGEN

During the past two years there has been an increase in interest in the manufacture of oxygen suitable for various industrial purposes. With the prospect of greatly reduced costs, its field of potential use has been broadened. In part the renewed activity in this field was the result of the need for oxygen-generating units for use in military operations where it was inconvenient to utilize steel cylinders. Plants having capacities from 10 to 1000 tons per day are now planned at a cost of $5 per ton of oxygen for a small plant and much less for larger ones where 95% oxygen is needed. By the use of oxygen instead of air, the processing of four tons of nitrogen for every ton of oxygen needed in a process can be avoided.

RARE EARTH SEPARATIONS

The complex problems presented by the need for detailed information regarding the fission products of uranium obtained as by-products in the production of plutonium have stimulated research in inorganic chemistry in a remarkable manner. Many publications are now appearing which deal with results obtained under Manhattan Project contracts. One important series of publications deals with the separation of radioisotopes produced in the fission process by means of ion-exchange resins. The process involves the removal of an element from a column of an ion-exchange resin by the use of a reagent which converts the ion of the element into a complex without having a similar effect on other ions present. These ion-exchange resins are similar to those employed in water softening installations for removing the calcium responsible for the hardness of the water. This new technic has made possible the separation of elements present in minute amounts in the mixture obtained from the chain-reacting pile where at least 14 products are present. It has also made possible the separation of the rare earth elements from mixtures in which they commonly occur. Formerly this could be accomplished only by tedious and prolonged fractional crystallization procedures. Furthermore the process is applicable to large scale operations, and hence it may be possible to make rare elements which were previously only museum items available for general research and development. Several papers have been devoted to theoretical aspects of this new technic, but the arguments involved are too complicated to be presented here. One can only look upon the use of ion exchange resins in the development of the plutonium bomb as another instance where the technological society of which we are a part was prepared to handle quickly an unexpectedly difficult problem.

CHEMICALS FROM PETROLEUM

During the early history of the organic chemical industry almost all synthetic operations started with raw materials obtained from coal tar. The chemistry of "aromatic" compounds, *i.e.* those derived from benzene, developed rapidly, furnishing dyestuffs, explosives, and pharmaceutical products. This earlier development of chemical industry took place primarily in Germany and to a lesser extent in England, being transplanted to this country after the First World War. In 1925, on a tonnage basis, 68 per cent of the production of organic chemicals was of the aromatic type (McClure and Bateman, Carbide and Carbon Chemicals Corp.), indicating that aliphatic compounds were already becoming of some industrial importance.

At one time petroleum was valuable only because of the various fuels and lubricants that could be obtained from it, largely by physical methods. In recent years, however, there has developed a chemical industry based on petroleum as a raw material which now is overshadowing in volume the products obtained from coal tar. In 1946, for example, chemicals obtained from petroleum sources amounted to over 3,500,000,000 pounds. Interestingly enough, important items in these petroleum products included toluene and xylene, aromatic hydrocarbons hitherto derived primarily from coal tar. Another consequence of this increase in importance of petroleum chemicals is the present dominance of aliphatic chemicals, 65 per cent on a tonnage basis in 1945 belonging in this category.

The production of chemicals from petroleum now promises to increase at an even more remarkable rate. One reason is that the raw material supply is more than abundant and the cost is low. Production of coal tar crudes is seriously limited, on the other hand, by the rate of coke manufacture for steel needs. Most of the ethane available from petroleum is now burned as fuel. It has been estimated that conversion of this into ethyl alcohol would increase the production of this item by a factor of fifty. Another interesting example is the estimate that enough hydrogen sulfide is obtainable from petroleum refining operations to supply all the U. S. requirements for sulfur. The most important new development, however, is the use of the Fischer-Tropsch process for the synthesis of gasoline which will soon get under way on a moderate scale. This operation will yield a tremendous amount of many organic compounds as by-products. For instance there will be about 4 per cent as much ethyl alcohol formed as there is synthetic gasoline (Ayres, Gulf Research and Development Co.). In addition, methanol and also alcohols of higher molecular weight will be produced as well as aldehydes, ketones, and acids in profusion. At least some of these will be available at prices which will broaden their industrial use in a marked degree. The Fischer-Tropsch units already under construction will provide about 0.5 per cent of the motor fuel requirements of this country. It is estimated that the aliphatic chemicals from these units alone will amount to 300,000,000 pounds annually. Although these compounds arise as by-products in the manufacture of gasoline they may still be considered as derived from petroleum since natural gas is the raw material for these first Fischer-Tropsch units.

BUTADIENE

Much of the butadiene needed for synthetic rubber during the war was produced from ethyl alcohol because the preparation from petroleum involved a more complex process and was slow in getting under way. Furthermore, the Russian synthetic rubber is apparently entirely derived from butadiene obtained from alcohol. The importance of the alcohol-butadiene reaction led Quattlebaum, Toussant and Dunn (Carbide and Carbon Chemicals Corporation) to study its mechanism which they have now completely determined. Over a silica gel catalyst activated by traces of other elements alcohol is first dehydrogenated to acetaldehyde, two molecules of which in turn readily condense to yield crotonaldehyde. Crotonaldehyde then is acted upon by alcohol to afford butadiene and acetaldehyde. In effect, the oxygen atom of the crotonaldehyde is removed by the alcohol. This new reaction was then tried on other aldehydes and ketones. In one of these experiments it was found that acetophenone could be converted to styrene by alcohol and the silica gel catalyst. It is not likely, however, that this method of preparing styrene (also needed for synthetic rubber) is as economical as others already available. As a result of this investigation the nature of the butadiene production process has been explained for the first time and a new reaction discovered which may well be of value in other chemical manufacturing processes.

ORGANIC SULFUR COMPOUNDS

The isolation of an antibacterial agent from *Allium sativum* was announced in 1944. This compound, allyl 2-propene-1-thiol-sulfinate, is not present in the garlic cloves, but is formed when they are treated by any procedure which breaks down the plant cells so that an enzyme is allowed to act upon another material of unknown nature present in the plant tissue. A method has now been devised by Cavallito and co-workers (Sterling-Winthrop Research Institute) for the synthesis of the natural compound and a number of analogs. The functional group present in these substances is a new one. All of the compounds prepared have considerable antibacterial and antifungal action and therefore may have practical value in the pharmaceutical industry.

Only comparatively recently has thiophene been made available as an organic chemical, produced from the high temperature reaction of sulfur with butane. It has now been found that a similar reaction of sulfur with styrene yields benzothiophene (Moore and Greensfelder, Shell Development Co.). Since this is an analog of naphthalene, an important coal tar product, a variety of uses for it may be expected to develop.

An unusual sulfur compound has been isolated by Zechmeister and Sease (California Institute of Technology) from the yellow petals of the African variety of the common marigold. This is terthienyl, a compound having three thiophene nuclei linked together in a chain. It was discovered because of its blue fluorescence which is unusual among pigments of vegetable tissues.

STEROIDS

An important event in steroid chemistry was the publication in September of the comprehensive paper by Marker, Wagner et al. (Penn. State College) on Steroid Sapogenins. This was one of the longest papers ever to appear in the *Journal of the American Chemical Society*. It deals with the results of a comprehensive search for naturally occurring sapogenins which contain an oxygen atom attached to the 11-position of the steroid nucleus. These were desired as starting materials for the synthesis of cortical hormones. Earlier, Marker and coworkers had been successful in finding sapogenins which can be used in the synthesis of sex hormones, and they hoped to repeat this success in the cortical hormone field. However, in an examination of some 400 species of plants in which 40,000 kg. of plant material was handled, no 11-

oxygenated steroid was isolated. The investigation provided interesting results, nevertheless, since new sources of supply were located for diosgenin, useful in synthesis of certain sex hormones, and many other sapogenins. In addition, 12 entirely new sapogenins and two steroids which are of possible interest as sapogenin precursors were isolated. The opinion is expressed that the steroid nucleus results from the condensation of several sugar units, a point of view advocated earlier by others. All 22 sapogenins studied were shown to be interrelated through relatively simple chemical changes. Apparently certain interconversions between closely related compounds also occur in the plant, for a given plant at one season of the year may contain only one sapogenin whereas at a later date a mixture is present, and this in turn may give way to a single final product. The complexities of the changes involved were followed closely through the seasons for a number of plant species.

There also appeared a series of 12 papers (Marker and Lopez, Laboratory of Botanica-Mex., S.A.) on more recent sapogenin researches which further extended our knowledge of this group of compounds.

ALKALOIDS

The common alkaloids have presented organic chemists with some of their most difficult and fascinating problems. It was only a few years ago that even a minute amount of quinine was synthesized in the laboratory. Morphine and strychnine are even more refractory in that their structures are not even yet completely settled, and synthesis of either of them is some distance in the future. During the year, Woodward and coworkers (Harvard University) presented additional data and arguments which assist in clarifying the structure of strychnine and confirm the formula proposed some years ago by Robinson of England.

Opium is a storehouse of alkaloids. Even yet the minor members of the group are receiving attention. There has now been reported a study on the isolation of neopine which is an isomer of codeine (Homeyer and Schilling, Mallinckrodt). From this, it was possible to make an isomer of morphine, which, however, does not have as high an activity as morphine as an analgesic agent.

HETEROCYCLIC COMPOUNDS

During the war there was an astonishing amount of synthetic organic chemistry devoted to the preparation of chemical compounds to be tested as anti-malarial agents. The majority of this work was concerned with heterocyclic compounds, *i.e.* those having other atoms as well as carbon in their rings. This work, carried out in many laboratories, has greatly increased the interest of many American organic chemists in a variety of heterocyclic types. Not only are the results of the work on the synthesis of compounds prepared for anti-malarial studies still appearing, but a considerable amount of fundamental organic chemistry research is being undertaken in the heterocyclic field as evidenced by the appearance of papers from many laboratories. A recent note by Koepfli, Mead, and Brockman (California Institute of Technology) describes the isolation of two alkaloids from the Chinese plant *Dichroa febrifuga* Lour. One of these compounds, which has the composition $C_{16}H_{19}O_3N_3$, is about 100 times as active as quinine in curing *P. lophurae* infections in ducks, and hence is worth further study as an anti-malarial agent. The structure of the compound is not known, but two of the nitrogens appear to be in a quinazoline ring. The second alkaloid is almost inactive as an anti-malarial agent, but it can be converted into the active compound by heat. There is some evidence that still another antimalarial drug is present in the leaves of the plant, and attempts to isolate this will be made.

Although a number of quinazoline derivatives have been synthesized in the laboratory, none has so far showed sufficient activity to be promising. Hence, elucidation of the structure of the alkaloids will be awaited with interest.

PODOPHYLLIN COMPONENTS

Investigators in two laboratories have reported that the drug podophyllin, a resinous mixture obtained from May apple roots and rhizomes, causes severe damage to tumor cells in mice. As a consequence, an intensive study of the resin is under way to isolate in a pure state all active components. One of these, podophyllotoxin, has long been known; another active compound, which has been assigned the name α-peltatin, has now been isolated (Hartwell, National Cancer Institute). Studies on the structure and biological properties are under way. The results of further work with podophyllin will be awaited with considerable interest as this seems to be more promising than most other present leads in the experimental cancer field.

FATTY ACIDS OF HUMAN HAIR

The fungus infection commonly known as ringworm of the scalp is common among children, but adults are largely immune. This immunity is associated with the change in chemical composition of the secretion of the glands of the scalp at puberty (Rothman, Smiljanic and Shapiro, University of Chicago and Standard Oil Co. of Indiana). A careful investigation of the free fatty acid fraction obtained from human hair has shown that the acids include those having an odd number of carbon atoms as well as the normal even carbon atom compounds. The acids which show an inhibiting action toward the growth of *Microsporon audouini,* the causative agent of the disease, are those containing 7, 9, 11 and 13 carbon atoms. Unsaturated as well as saturated acids are present. This seems to be the first instance where acids having an odd number of carbon atoms have been isolated from a natural source.

ANTIHISTAMINE AGENTS

Among the most useful types of synthetic medicinals developed in recent years are those which are reported to ameliorate the symptoms of allergies. New compounds, which in the laboratory have high potency in blocking the effect of histamine, have been found in the thiophene analogs of a drug already available (Pyrabenzamine). One of these new compounds was reported from three different laboratories during the year and presumably will be commercially available soon. Thiophene derivatives promise to be of considerable interest in medicine since they show activity at least comparable to the corresponding benzene derivatives.

PROTEINS

It has been found by Woodward and Schramm (Harvard University) that it is possible to polymerize amino acids into protein-like molecules of high molecular weight. The starting material for such a reaction is the anhydride of an N-carboxy-α-amino acid. A trace of water initiates the reaction which then proceeds spontaneously. The molecular weight of such a product from leucine for example is believed to be in the range of 1,000,000 to 15,000,000. These polymers differ greatly from proteins in that they contain only one amino acid, whereas the natural compound may be composed of as many as 20. Perhaps it will be possible to bring about polymer formation in a mixture of several amino acid derivatives, but it seems improbable that a natural protein can be prepared by Woodward's procedure. On the other hand, it is not unlikely that this work will lead to the preparation of polymers having useful properties in the resin field. It has been reported that the infrared spectrum of Woodward's compounds closely resemble that of denatured keratin.

VITAMINS

An improved method for the synthesis of riboflavin (vitamin B_2) has been described by Tishler and coworkers (Merck and Company). A general reaction is employed in which an *ortho* aminoazo compound condenses with barbituric acid. Barbituric acid is more readily available than the alloxan or the halogenated barbituric acid required by older synthetic methods.

Although three members of the vitamin E or tocopherol group of vitamins have been isolated and synthesized, still another member of this group, δ-tocopherol, has now been discovered by Stern, Robeson, Weisler, and Baxter (Distillation Products, Inc.). About 30 per cent of the vitamin E fraction of soybean oil is δ-tocopherol; lesser amounts occur in wheat germ oil, cottonseed, and peanut oils. The new compound is more effective as an antioxidant in protecting vitamin A against air oxidation than are the other tocopherols and also is itself more slowly destroyed by warming in contact with air. The chemical structure of the new vitamin was determined by degradation reactions and verified by synthesis.

Full details are now available concerning the isolation of neovitamin A from shark liver oil. This new vitamin constitutes up to 35 per cent of the vitamin A fraction of a number of fish liver oils, hence its isolation and a determination of its biological potency are of importance. It has been found by Baxter and Robeson (Distillation Products, Inc.) to be substantially as active as vitamin A by the standard U.S.P. growth test method.

ELECTROCHEMISTRY

By Colin G. Fink
Professor, Columbia University

GENERAL

No period in the history of electrochemistry since the fundamental discoveries of Michael Faraday (1833) has been so fruitful of far-reaching inventions as the period of the Second World War. At no time have so many new electrochemical products and processes been developed and introduced into industry: new cells, new vacuum tubes, new metals, new batteries, etc. At no time has interest in electrochemistry been so keen and so universal. In these post-war years we are beginning to realize that the great "boost" that electrochemistry received during the war will continue to exert itself for many years to come.

POWER

The general expansion of the electrochemical industry is more than ever contending with low electric power rates. The U. S. irrigation projects have very largely contributed towards the spread of the electrochemical industry. Abroad there are few electrochemical centers favored with low rates. German brown coal is a highly competitive raw material. The promotion of low rate hydropower is essential in establishing new electrochemical centers such as those of France, Italy, Scandinavia, and Russia.

ELECTRIC STEEL

The war stimulated outstanding improvements in the composition and physical properties of electric steel. A means toward this end is the general adoption of the "boil" in electric steel production. This boil is so called because the molten steel behaves very much like a boiling liquid. The electric furnace is charged with steel scrap or with molten steel from the open hearth furnace, together with certain additions such as scale (Fe_2O_3), pig iron, manganese, *et al.* As the temperature of the metal in the furnace is increased well above the melting point one or more of the following reactions takes place: FeO +

$C = Fe + CO$; $MnO + C = Mn + CO$; $SiO + C = Si + CO$; etc. The CO formed in the body of the molten mass rises to the surface of the bath bringing about the "boiling" effect. The resulting steels are superior to the older electric steels manufactured without the boil. It is the very fluid condition of the new steel while in the furnace, together with the thorough mixing effect, that gives the remarkable results.

PRIMARY CELLS

The National Carbon Company has marketed a new heavy-duty air cell suitable for railway signal service. The cell comprises a zinc metal anode, caustic soda electrolyte, and an anode of carbon of the gas mask type. Basically, air is the depolarizer. The new cell has twice the operating voltage and therefore twice the watt hour capacity of the Lalande (Zinc-Copper) cell. The new Ruben Cell comprises the electrochemical system: $Zn \mid Zn(OH)_2 \mid KOH$ aq. $HgO \cdot Hg$.

The rated capacity is 200 milliampere hours for each 1.6 gram unit of active material. The initial closed circuit voltage ranges between 1.24 to 1.31 volts depending on the load applied. Active materials are utilized to the extent of 85 per cent. The efficiency is decidedly above that of the old conventional Leclanché cell, the so called "dry battery."

A number of dry cells were developed during the war using magnesium in place of zinc. It is strikingly evident that the war gave the dry cell manufacturers the greatest "boost" to research since the inception of the industry.

THE NEW CASTNER CELLS

Under the stimulus of German findings, American alkali-chlorine producers have continued their researches on the mercury (Castner) process. It is found that the mercury process is more economical for small plants or for such plants manufacturing rayon-grade caustic, particularly at locations where solid salt is available or electric power is cheaper than fuel power. The mercury process is also favored for producing potassium hydroxide.

ELECTROLYTIC POLISHING OF METALS

Stainless steel, nickel, copper, brass, and others are now being commercially polished anodically largely with the aid of phosphate electrolytes. The surface produced is highly resistant to corrosion, aside from its very attractive appearance. An important factor in favor of electrolytic polishing is the relatively low labor cost.

CORROSION

Corrosion continues to be one of the most active fields of electrochemistry. Scores of chemists and engineers have joined the ranks of the corrosion engineers, and, in view of the high prices for metals, any distinct progress made in combating corrosion is welcomed by industry. The Dow Chemical Company continued to promote the application of magnesium as a sacrificial metal in the cathodic protection of pipe lines.

For the surface protection of magnesium articles and parts, non-porous coatings of anhydrous magnesium carbonate are produced by anodic treatment of magnesium articles in a saturated solution of sodium carbonate at 60°C and at an initial current density of above 50 amp/sq. ft. During treatment, the current density drops to 0.2 amp. per square foot under properly controlled conditions.

R. W. Buzzard has patented a protective coating for magnesium produced by making the magnesium article anode at 6 amperes per square foot in an electrolyte kept at 50°C and at a pH of 3. to 6.5. A typical bath contains 10 per cent sodium bichromate, 2 per cent of sodium biphosphate, and magnesium fluoride up to saturation.

J. Michel deposits anodically a coating of magnesium fluoride on magnesium metal and magnesium alloys using a saturated aqueous solution of ammonium fluoride (NH_4F). In place of the MgF_2 coating, P. R.

Cutter recommends a silicate coating produced anodically in an alkaline solution of sodium silicate.

ELECTRO-ORGANIC CHEMISTRY

The Electro-Organic Division of The Electrochemical Society devoted itself at the October Convention to the discussion of researches in "Electrolytic Oxidation and Reduction." This field has not attracted investigations to the same extent as the fields of electrodeposition and corrosion but the outlook for discoveries of widespread commercial application is most promising. It must be remembered that the United States became the leader in organic chemistry as late as 25 years ago. Previous to that time, Germany led the world in new dyes, new pharmaceuticals, and new organic products in general. Accordingly, electro-organic chemistry will soon benefit by the progress and development of the parent general subject of organic chemistry.

CONCLUSION

Reviewing the progress in electrochemistry during 1947, we can not fail to note the unprecedented number of reports and researches recorded in this most fertile field of chemistry. The year 1947 marks the first year that editors and publishers received more manuscripts than could be accommodated. The answer to this situation is the reported founding of new additional journals devoted to the science and application of electrochemistry, or, more specifically, devoted to one or the other field of electrochemistry such as corrosion, electro-plating, batteries, etc.

PERIODICAL PUBLICATIONS

American Journal of Physics
57 E. 55th St., New York City.
Chemical and Engineering News
60 East 42nd St., New York City.
Chemical Engineering Catalogue
330 West 42nd Street, New York City.
Chemical Industries
522 Fifth Ave., New York City.
Chemical and Metallurgical Engineering
330 West 42nd Street, New York City.
Chemical Reviews
Mount Royal and Guilford Aves., Baltimore, Md.
Chemist, The
60 E. 42nd St., New York City.
Industrial and Engineering Chemistry
60 E. 42nd Street, New York City.
Journal of the Acoustical Society
57 E. 55th St., New York City.
Journal of the American Chemical Society
Easton, Pa.
Journal of Applied Physics
57 E. 55th St., New York City.
Journal of Chemical Education
500 Fifth Ave., New York City.
Journal of Chemical Physics
57 E. 55th St., New York City.
Journal of Mathematics and Physics
Massachusetts Institute of Technology, Cambridge, Mass.
Journal of the Optical Society
57 E. 55th St., New York City.
Journal of Organic Chemistry
Mount Royal and Guilford Aves., Baltimore, Md.
Journal of Physical Chemistry
Mount Royal and Guilford Aves., Baltimore, Md.
Physical Review
57 E. 55th St., New York City.
Review of Modern Physics
57 E. 55th St., New York City.
Review of Scientific Instruments
57 E. 55th St., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSOCIATION OF CEREAL CHEMISTS, 4049 Pennsylvania Ave., Kansas City, Mo.

AMERICAN ASSOCIATION OF PHYSICS TEACHERS, Northwestern University, Evanston, Ill.

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS, 1 Madison Ave., New York City.

AMERICAN CERAMIC SOCIETY, 2525 N. High St., Columbus, O.

AMERICAN CHEMICAL SOCIETY, INC., 1155 16th St., N.W., Washington, D. C.

AMERICAN ELECTROCHEMICAL SOCIETY, Broadway and 117th St., New York City.

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, 50 E. 41st St., New York City.

AMERICAN INSTITUTE OF PHYSICS, 57 E. 55th St., New York City.

AMERICAN MICROSCOPICAL SOCIETY, Kansas State College, Manhattan, Kan.

AMERICAN OIL CHEMISTS SOCIETY, 509 Poydras St., New Orleans, La.

AMERICAN PHYSICAL SOCIETY, Columbia University, New York City.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, U. S. Bureau of Agricultural Chemistry and Engineering, Washington, D. C.

AMERICAN SOCIETY OF BREWING CHEMISTS, INC., 64 East Lake St., Chicago.

ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS, Box 540 Benjamin Franklin Station, Washington, D. C.

COPPER AND BRASS RESEARCH ASSN., 420 Lexington Ave., New York City.

NATIONAL RESEARCH COUNCIL, 2101 Constitution Ave., Washington, D. C.

SOCIETY OF CHEMICAL INDUSTRY, 305 Washington St., Brooklyn, New York City.

SYNTHETIC ORGANIC CHEMICAL MANUFACTURERS ASSN., 6 E. 45th St., New York City.

DIVISION XXII

BIOLOGY

ORGANIC EVOLUTION AND GENETICS

By Warren P. Spencer
Professor, College of Wooster

PRINCETON CONFERENCE

The Princeton University Bicentennial Conference on Genetics, Paleontology, and Evolution was held at the Princeton Inn, Jan. 2-4, 1947. In attendance were about 65 of the leading authorities on evolution from the United States and the British Isles. The subjects presented and discussed at the conference sessions were: Time in Earth History; Gene and Character; Gene and Mutation; Time Series, Trends, in Animals; Time Series, Trends, in Plants; Rates of Evolution in Animals; Rates of Evolution in Plants; Speciation and Systematics; and Adaptation and Selection. Dr. J. B. S. Haldane addressed the conference and others at an evening lecture on "Man's Evolution, Past and Future." This Conference was an important milestone along the way toward a closer cooperation of geneticists, paleontologists, and taxonomists in studying the problems of evolution.

GENETICS OF MICROORGANISMS

W. S. Stone, O. Wyss, and F. Hass (30) began their study of mutation in the bacterium, Staphylococcus aureus, by dividing a 24-hour broth culture of this organism into two portions, one of which was exposed to heavy ultraviolet radiation for six minutes and the other kept as a control. The two cultures were then grown on nutrient agar and on nutrient agar plus several concentrations of penicillin. It was found that on control agar, the irradiated material, showed fewer colonies, had a poorer growth, than the control bacteria. However, on penicillin-agar the reverse was true, and where the penicillin concentration was highest the irradiated bacteria produced 1,660 colonies to 136 colonies of controls. Thus, they established that direct irradiation of the bacteria produced many mutants resistant to penicillin. The better growth of non-irradiated material on control agar proved that the results were not due to selection, but rather to mutation to resistant strains.

In the next step the nutrient broth was first irradiated for three hours, and then the bacteria were introduced. Again the bacteria grown on control agar without penicillin and without radiation showed higher colony formation than on control agar which had been irradiated. However, in the irradiated penicillin-broth colony formation was higher than in the non-irradiated penicillin-broth. With highest penicillin concentration, the non-irradiated broth produced 12 colonies, the irradiated broth 1,360 colonies. Subsequent irradiation of the mineral constituents and the amino-acid and vitamin constituents in separate experiments showed that the resistant mutations were produced only as a result of irradiation of the amino-acid vitamin fraction of the medium.

The authors suggest two alternative explanations: (a) that irradiation has produced new chemical compounds which in turn induced the mutations; (b) that there has been an absorption of energy which in turn induces mutation. They consider the second hypothesis to be the more tenable. Parallel experiments on streptomycin gave similar results. The mutations proved to be specifically resistant to penicillin or to streptomycin, but not to both. This important work has both theoretical and practical applications. On the one hand, it opens the way to a new attack on the problem of the nature of mutation; on the other hand, it suggests that atomic and other high energy radiation may induce mutation indirectly by action on the environment, particularly on the food taken into the organism.

Joshua Lederberg (20) cultured together two strains of the bacterium, Escherichia coli, each strain pure for at least two different mutants producing nutritional deficiencies. When grown on minimal media, wild-type or so-called "prototroph" forms appeared, which contained none of the four or more mutants carried by the original strains. These "prototroph" strains were considered to be the result of the formation of diploid zygotes through the sexual union of two bacteria with subsequent segregation of the non-mutant genes through random assortment or crossing-over. By the use of still other strains, containing the deficiency mutants plus such genetic factors as resistance and susceptibility to bacteriophage, he was able to demonstrate crossing-over between the new factors and the deficiency genes.

The proportions in which different segregants were recovered indicated that the genes were carried on one chromosome and in linear order. A tentative chromosome map containing eight gene loci was constructed. The fact that all factors thus far tested behaved as though linked has led to the conclusion that the genes in this species of bacterium are carried on one chromosome. The hypothesis that genes from one line had produced transforming substances, which induced directed mutations in the other line was found to be highly untenable on the experimental evidence. This investigation appears to have demonstrated that in this bacterium a sexual stage exists. The infrequency of formation of zygotes under present culture conditions makes it highly improbable that the zygote stage will actually be seen under the microscope. However, new methods of culture may well increase the frequency of zygote formation.

M. B. Houlahan and H. K. Mitchell (13) discovered a strain of the mold, Neurospora crassa, containing a pyrimidine-deficient mutant, which began to grow in the absence of pyrimidine. Results of the breeding tests showed that the strain carried a newly arisen mutant, which suppressed the action of the pyrimidine-deficient mutant. Four other pyrimidine-deficient mutants were tested and the suppressor acted on two of them but had no effect on the others. The three mutants affected by the suppressor had behaved in cross-tests as though they were alleles, mutants at one locus. However, there are technical difficulties involved in establishing allelism in Neurospora, and the identical action of the suppressor on all three was considered additional evidence that they were actually mutations at the same locus.

In a sulfanilamide-resistant strain of the mold, Neurospora crassa, S. Emerson (10) found a new mutant type, which required a sulfonamide for growth. The growth of this new strain was inhibited by very low concentrations of p-aminobenzoic acid. When subjected to high temperature and low sulfonamide concentration reversions occurred, which did not require sulfonamide for growth. Crosses of such reverted strains resulted in recovery of the sulfonamide-requiring type. This result indicated that suppressors had arisen at other loci, rather than reversion at the sulfonamide-requiring locus.

C. C. Lindegren and G. Lindegren (21) found that a mutation in the yeast, Saccharomyces cerevisiae, produced pink colonies. While the pink colonies were primarily conditioned by the mutant gene it was discovered that continuous culture resulted in the pink character disappearing, as though a reverse mutation had occurred at the pink locus. However, by out-crossing the white type thus derived from pink to an unrelated strain the pink character could immediately be restored. It was postulated that pink was conditioned by a primary gene plus other substances (X, Y, Z, etc.). These other substances were essentially genic materials which could be depleted, the gene itself being the substance X, Y, or Z. Outcrossing to a strain which had not been subjected to this depletion reaction immediately restored the combination of the primary gene and the secondary substance or gene required to produce the pink character.

MUTATION RATES

J. V. Neel and W. N. Valentine (24) reported their studies on thalassemia in the Italian population of Rochester, N. Y. Thalassemia major is an inherited blood disease, highly fatal. Thalassemia minor is a mild blood condition, apparently the heterozygous form of T. major. As T. major has a negative selective value of about one, and T. minor a negative selective value of between 0.1 and 0.0, they have estimated that the mutation rate, to account for the incidence of this gene, would have to be one in 2,500 or higher. This is the highest mutation rate yet reported for any human gene. Possible hypotheses alternative to that of high mutation rate were considered, though none of these seemed plausible. This work, in connection with former rates published by Penrose and Haldane, indicates that certain specific human genes have very high mutation rates in comparison with what is known of mutation rate in other organisms. Strangely enough, thalassemia is largely restricted to peoples of southern Mediterranean extraction.

L. C. Strong (31) injected mice from long inbred lines with the carcinogenic agent, methylcholanthrene. In addition to the occurrence of numerous malignant tumors, germinal mutations involving coat colors have apparently arisen in relatively high numbers. The experiment was carried out on a very large scale with adequate controls. While the actual mutation rate, as deduced from certain statements in the report, may not have been as high as estimated by the author, it would seem that this chemical agent had induced germinal mutations. This work extends the findings of Auerbach that chemicals, mustard gas compounds, could produce mutations in Drosophila, to the discovery of chemical induction of mutations in mammals.

R. Lamy (18) studied the origin of spontaneous lethal mutations in about 16,500 X-chromosomes of sperm derived from 79 Drosophila melanogaster males. By testing the sperm from each individual male separately, and by allowing some of the males to breed slowly and others rapidly, she concluded that sperm produced in the first week showed a higher mutation rate than those produced later; that in slow breeding after a low incidence of mutation in the second week there was a later rise in mutation rate, but not to the level attained in the first week. In general, her findings were in agreement with the more extensive data of Dr. H. J. Muller, published previously.

B. P. Kaufmann (14) reported lethal mutation rates in the X-chromosomes of sperm from D. melanogaster males 1-2, 16-17, and 32-33 days old. The aged males were not allowed to copulate until the time when the sample of sperm was taken. He showed that the number of mutations in the aged sperm was markedly increased. This finding may be harmonized with those of Muller and Lamy, as the unmated males probably do not continue to form fresh sperm. Apparently mutations were occurring during the time that the sperm were aging.

HYBRIDIZATION AND SPECIATION

The fifth in the series of monographs on "Studies in the Genetics of Drosophila," written by J. T. Patterson and his colleagues (25) and published by the University of Texas Press, appeared in 1947. The monograph deals with "Isolating Mechanisms," and for lack of space only a few of the findings can be mentioned here. Patterson reported more fully on the "insemination reaction" in intra- and inter-specific crosses. During or, soon after copulation, there is a rapid secretion of fluid into the vagina, causing a swelling to three or four times normal size. In intraspecific matings, the swelling subsides in a few hours, but in certain interspecific matings may persist for several days. In all, eight members of the D. mulleri species group tested, the insemination reaction occurred in intra-specific matings. In those crosses between species where sperm were deposited, the insemination reaction occurred in an exaggerated form and often resulted in degeneration of the eggs before they were laid. This factor was interpreted as a potent isolating mechanism, preventing successful species crosses, though only one of several such mechanisms which have been discovered.

M. R. Wheeler (25) studied the intra-specific insemination reaction in 78 species of Drosophila. He found that about one-fourth of the species did not show it; in one-fourth it appeared in moderate form; and in one-half the reaction was extreme. W. K. Baker (25) demonstrated that certain strains of the species, Drosophila arizonensis, were partially sexually isolated from one another. The high F_1 hybrid fertility indicated that the isolating factors were autosomal recessives. In inter-specific crosses between D. arizonensis and D. mojavensis sexual isolation was much less potent than reproductive isolation, *i. e.* hybrid sterility. J. W. Sears (25) made inter-specific crosses in the D. quinaria species group. Of the nine species used in all possible cross-matings, every one was found to cross with at least one other in the species group. Fifteen of these crosses were partially fertile. Twenty-seven of the 60 possible back-cross combinations of the hybrids to parent species were partially fertile. Eight of the 15 hybrid combinations were partially fertile when inbred. Phenotypic differences between species in some cases showed dominance of one species character over the other and in other cases intermediate or blending expression. These cases and others reported in the monograph served to illustrate the wide variety of isolating mechanisms in the genus Drosophila, and the many different levels of divergence attained in the process of speciation in different populations, subspecies, and species pairs and groups. The work of this team of investigators has added much to the knowledge of evolution in this genus.

J. C. King (15) studied the cytology of six closely related species of Drosophila, five from Brazil and one from Mexico. They were divided into two subgroups on the basis of morphology and cytology. The three species in one subgroup showed interesting similarities and differences. Morphologically, D. guarani appeared to be intermediate to the other species. However, guarani could not be crossed successfully either to D. guaru or D. subadia, although hybrids of the latter two species were produced. Such hybrids could then be crossed successfully to guarani and triple hybrids produced, bearing some chromosomes from each of the three species. The chromosomes of the triple hybrids showed as good paring as in many hybrids between two species. It was concluded on the basis of the study that the chromosomes of all three species were very similar, and that, in the main, differences in metaphase chromosome configurations were due to varying amounts of heterochromation in the three species.

H. V. Crouse (7) studied the chromosomes in the salivary glands of two species of the fungus gnat, Sciara. She found a long terminal inversion in one chromosome in a specimen of

S. ocellaris. The study of the chromosome pairing in hybrids between S. reynoldsi and S. ocellaris has led her to conclude that, in the course of speciation, inversions, some of which were terminal, have brought about a difference in gene alignment in the two species.

Continuing his work on the hybridization of geographic strains of the frog, Rana pipiens, J. A. Moore (23) crossed frogs of this species from Mexico with those from Vermont. The hybrid abnormalities were the most extreme yet seen, correlated with the fact that these frogs came from more widely separated latitudes than in any previous experiments. These geographical extremes of Rana pipiens behaved in hybridization as though they belonged to two distinct species; yet it had been shown that all along the north-south transect investigated populations from adjacent regions were interfertile.

J. Clausen, D. D. Keck, and W. M. Hiesey (6) reported on extensive experiments in plant hybridization, which they have been carrying on for some years at three California stations, one near sea-level at Stanford, a second at Mather in the Sierras at about 4,500 feet elevation, and a third in the High Sierras at over 10,000 feet elevation. It is not possible here to relate even in brief summary the several experiments. They have crossed ecotypes, ecological races, of different plants from these elevations, and then selected certain F_2 segregants for further study. Clones, groups of plants with the same heredity secured by vegetative propagation, have been established. Representatives of these clones were grown at the three stations and their adaptive potential for the three ecological habitats determined. This comprehensive study, covering years of work and thousands of plants on which measurements have been taken annually, has demonstrated that many genetic combinations, some of them more favorable for particular habitats than the plants from which they came, can be produced naturally or artificially by hybridization and subsequent selection.

C. Epling (11) examined populations of two species of Salvia growing in the coastal regions of southern and central California. These two species showed a sympatric geographical distribution, although S. apiana tended to a drier habitat, invading the chaparral zone, while S. mellifera was more coastal. Hybrids were frequently found growing in colonies of S. mellifera, and careful examination of such colonies gave evidence of backcrossing to S. mellifera. The distribution of hybrids indicated that generally S. mellifera was the female parent. Local disturbances of the habitat, either natural or man-made, seemed to favor hybridization. In spite of the frequency of crossing both species maintained their identity throughout the range. This fact was accounted for by low fertility of the hybrids, and somewhat different ecological adaptations and seasonal rhythms of the parent species.

W. J. C. Lawrence (19) found two genes, L and E, in a species of Streptocarpus from South Africa, which when present in the same plant produced a sublethal condition, the genes acting as complementary dominants. The population carrying the L gene was 230 miles from that carrying the E gene. Had these genes become fixed in the two geographically isolated populations either by selection or genetic drift, they would have constituted an effective bar to intercrossing, should the populations ever become contiguous. Such physiologically isolated populations might then undergo subsequent changes leading to speciation.

J. W. MacArthur and L. P. Chiasson (22) made crosses between tomato species belonging to different subgenera and demonstrated that the evolutionary divergence was mainly in gene differences. They showed that hybrid infertility was not due to chromosome incompatibility.

S. J. Wellensiek (32) reported on methods for producing Triticales, the amphidiploids of wheat-rye hybrids. By crossing Triticum vulgare, a wheat with 42 chromosomes, to Secale cereale, rye with 14 chromosomes, he produced F_1 hybrids with 28 chromosomes. These were then divided repeatedly to form clones of several hundred plants. These plants were treated by immersing the roots repeatedly in a .05 per cent aqueous solution of colchicine and replanting. The colchicine treatment resulted in the formation of some amphidiploids with 56 chromosomes, which were quite fertile.

CYTOGENETICS

J. P. Kotval and L. H. Gray (17) used alpha-particles, known to produce very high ionization, in irradiating the microspores of Tradescantia. The number of chromosome aberrations thus produced indicated that alpha-particles passing near, as well as those passing through, a chromatid might induce breaks. The relatively high number of iso-chromatid breaks, simultaneous breaks at the same level in two sister chromatids, also favored this interpretation. It is suggested that alpha-particles in nature may have played a considerable role in the production of chromosome abnormalities. This work was part of the extensive cytogenetic radiation program initiated some years ago by D. E. Lea and D. G. Catcheside.

L. Smith (29) produced a strain of wheat containing a chromosome fragmented through the centromere. The two fragments, each with a spindle attachment, were found useful in determining the linkage group of certain genes. H. Roman (27) produced interchanges between the regular or A chromosomes of corn and a supernumerary or B type chromosome, which has no specific genetic effect in itself. These "translocation tools" could then be used in attacking numerous problems dealing with the cytology and genetics of corn.

D. G. Catcheside (5) demonstrated that in the plant, Oenothera, three adjacent genes when transferred to a new location by a segmental interchange, produce a variegated spotting character. This was shown to be a position effect by the transfer of these genes back to their normal position in the chromatin complex, resulting in the disappearance of the variegated character. This is the first well established case of "position effect" in plants. Karl Sax (28) showed in Tradescantia that certain chromosome aberrations were increased in frequency if the material was subjected to low temperature at the time of X-ray treatment.

A. A. Prokofyeva-Belgoskaya (26) made a thorough study of the nature of heterochromatization. Heterochromatin, in contrast to euchromatin, contains more thymonucleic acid, the chromonemata are twisted into a tight spiral, and during the major part of the cell cycle it stains deeply as does all chromatin at the metaphase stage of mitosis. There is also a tendency for the chromatids to repel one another. Thus in salivary gland chromosomes the heterochromatic regions show a repulsion of the numerous chromatids, leading to a diffuse, meshlike structure in contrast to the closely apposed chromatids of the euchromatic regions. When euchromatic material is transported by translocation to a point adjacent to heterochromatin it too takes on these properties, thus accounting for the position effect of genes in this transposed euchromatin. Such genes tend to become inert and to produce the mottling effects often noted.

By a parallel study of effects of temperature, sex, age of parents and other factors on heterochromatization and on crossing-over the author concludes that heterochromatization is essentially a change in the chromosome cycle, in which the chromatin spends relatively more time in the mitotic or division stages and less time in the metabolic or resting stage. On this interpretation even euchromatin goes through a heterochromatic time period, albeit much shorter than that of heterochromatin. Whether this comprehensive hypothesis of heterochromatization be accepted in its entirety remains for future study. In any case it points the way to further work in the resolution of many obscure phenomena connected with the differential action of the several chromatic regions.

H. G. Callan and G. Montalenti (3) demonstrated that there is chiasma interference across the centromere in the mosquito, Culex pipiens. This work corroborates that of Patau on this species and one other. The situation in this mosquito differs from that in Drosophila, where interference across the centromere is absent.

C. Auerbach (1) treated Drosophila melanogaster with mustard gas, and among other mutations produced by the treatment found one which had a weakening effect on the centromere, the point of attachment of the spindle fiber. This mutation resulted in abnormal behavior of the X-chromosome in gamete formation. M. Kodani (16) demonstrated that there is an apparent difference in terminal bands in the salivary X-chromosome of different stocks of Drosophila melanogaster. He interpreted these differences as due to different degrees of packing of the terminal chromatin and not to deficiencies.

NATURAL SELECTION AND POPULATION GENETICS

On the basis of an extensive study of the English sparrow in the United States, J. B. Calhoun (2) concluded that there has been an increase in the mean size of this bird since its introduction in the period between 1850 and 1880. His analysis included 1,614 study skins and over 600 specimens collected at the time the work was done. The distribution in four north-south temperature zones studied indicated that larger size had been attained in northern zones than in southern, a probable adaptation to high temperatures in the south and low temperatures in the north.

In the stickleback fish, Gasterosteus aculeatus, M. J. Heuts (12) found two distinct physiological types, one adapted to marine and the other to fresh-water habitats. Populations of this fish differed in a complex of morphological characters; but there was intergrading of these characters with a distinct tendency to the formation of a north-south gradient. On the other hand the physiological types were distinct with little intergrading. Heuts concluded that, starting from a polygenic complex, adaptive evolution toward the two distinct types had occurred.

H. L. Carson and H. D. Stalker (4) collected specimens of Drosophila robusta in large numbers from five localities ranging in a northwest-southeast transect from Iowa to Florida. One large collection from Ohio, some 500 miles east of the transect, and small collections from many other points in the eastern United States were made. Analysis of the salivary chromosomes of the descendants of these flies revealed the presence of 13 inversions in the six chromosome arms in addition to the standard sequence. Most of the inversions were widespread over the geographical range, but showed north-south gradients in distribution. In some cases an inversion was very frequent at one end of the transect and entirely lacking in the sample from the other end. Of special theoretical interest was the finding of two pericentric inversions, rearrangements across the centromere, a condition found thus far in only one other Drosophila species.

N. P. Dubinin and G. G. Tiniakov (9) found a remarkable distribution of inversions in the chromosomes of Drosophila funebris. The summer populations of this species in the central part of Moscow contained about 90 per cent of flies heterozygous for chromosome inversion; those on the margin of the city contained about 12 per cent inversion heterozygotes; in the suburban villages the incidence had fallen to 2 per cent. They reported similar distributions in other cities. Apparently the inversion heterozygotes were adapted to urban or industrial habitats, and flies free from these chromosome configurations were better adapted to rural conditions. In another paper, they reported that hibernating flies showed a marked drop in the incidence of inversion heterozygotes through a two and one-half months period.

Th. Dobzhansky and S. Wright (8) studied the diffusion of a mutation through a population of fruit-flies. Over 25,000 orange eyed Drosophila pseudo-obscura were released at one point in the Sierra Nevada mountains in July and August. Ten months later, by trapping and testing for flies carrying the orange gene they showed that 95 per cent of the progeny of the released flies were living within a radius of about 1.1 miles.

Watkin Williams (33) reported further results of studies on the oppositional alleles in red clover. In this remarkable multiple allelic series fertility results only if the pollen tube contains an allele different from at least one of those carried by the female parent. However, a few pollen tubes may grow and fertilize eggs even when both parent plants are homozygous for the same allele. Such a phenomenon is termed "pseudo-fertility." By this means several homozygous plants were produced and tests of self-sterility and of backcross sterility demonstrated their genetic constitution. One self-fertility allele in the series was discovered. In a large scale test 37 out of a total of 40 genes picked at random from a red clover population were shown to be different. This experiment demonstrated the complexity of the mechanism which has developed in this plant to secure cross-pollination through self-sterility.

NEW BOOKS AND JOURNALS

The first volume of a series on *Advances in Genetics* (458 pages) was published by the Academic Press. It contained review articles on: Cytogenetics and Breeding of Forage Crops; Cytogenetics and Speciation in Crepis; Speciation in Fishes; Immunogenetics; the Origin and Evolution of Maize; the Genetics of Cattle; Recent Advances in the Genetics of Paramecium and Euplotes; Mutations in Wild Populations in Drosophila; Types of Polyploids; their Classification and Significance; and Cytogenetics of Gossypium and the Problem of the Origin of New World Cottons. This volume was edited by Dr. M. Demerec and the contributors were specialists in the several fields covered.

Dr. D. E. Lea wrote a notable and timely book on *The Action of Radiation on Living Cells;* notable in that he, as a physicist, has for some years collaborated with cytogeneticists and has a thorough understanding of the underlying problems; timely in that we are now in the new atomic age, where radiation will play an increasing and not always beneficent role in human, animal, and plant biology.

Two new journals have been founded in the past year: *Evolution,* published in the United States and edited by Dr. Ernst Mayr, and *Heredity,* published in Great Britain and edited by Dr. C. D. Darlington and Prof. R. A. Fisher.

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ENTOMOLOGY

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INSECTICIDES

In no field of endeavor during the past year has there been greater activity than in the development of insecticides. Not only have new chemical compounds been made available, but the problems of formulations have been attacked with some success, new apparatus has been developed for applying these insecticides, and field tests have been made with them against the pests of a number of crops, domesticated animals, and man.

As far as chemical structure is concerned, probably the greatest activity has been with chlorinated hydrocarbons and organic phosphates. Among the chlorinated hydrocarbons, particular emphasis has been given to benzene hexachloride, Chlordane, a chlorinated camphene known as Toxaphene, and such materials as Methoxychlor and DDD, analogues of DDT. Progress has also been made, of course, in the utilization of DDT itself. As for organic phosphates, particular attention has been given to a material known as Parathion (o,o-diethyl o-p-nitrophenyl thiophosphate). This compound was first utilized in Germany for insect control and high insecticidal efficiency has been indicated on a number of pests. It is highly toxic to warm-blooded animals when taken orally, and in organic solvents it can be highly toxic when applied to the skin. Vapors are also toxic when inhaled. The compound acts on the parasympathetic nervous system. Another organic phosphate, hexaethyl tetraphosphate, has been widely investigated. This material was also developed by the Germans during the war, and the common name Bladan given to it. Hexaethyl tetraphosphate does not exist as such but is a fortuitous mixture of organic phosphates, the active agent being tetraethyl phosphate (Hansen, *Jour. Econ. Ent.,* 40:600). Synergists for rotenone and pyrethrum compounds have also been investigated, and piperonyl compounds have shown promise.

Frear and Seiferle (*Jour. Econ. Ent.,* 40, p. 736) have published an interesting paper on chemical structure and insecticidal efficiency. They summarize the published and unpublished results of tests of 6,155 chemical compounds. The chemical groupings present in these compounds have been studied in relation to these results. Certain of these groups are regularly associated with low toxicity. The findings are presented as a guide for workers who are interested in the synthesis of compounds of insecticidal value.

The use of airplanes to apply insecticides is expanding rapidly. Among recent developments is the use of airplanes to control grasshoppers in the western states. In the ten-year period 1936-45 grasshoppers destroyed $400,000,000 worth of crops. During this same period control measures saved crops worth $600,000,000 at a cost of less than $25,000,000. Brown (*Jour. Econ. Ent.,* 40, p. 607) carried out a series of tests designed to determine the efficacy of an oil-base bran-sawdust bait containing commercial Chlordane for grasshopper (*Melanoplus mexicanus*) control when dispersed from a light airplane. He obtained a population reduction in six days of approximately 95 per cent. Brown (*Jour. Econ. Ent.,* 40, p. 606) also tested an emulsion of 3,5-dinitro-orthocresol for the control of *Camnula pellucida* by aircraft and obtained a population reduction of approximately 75 per cent.

Probably the largest forest-insect control project of its kind ever undertaken was carried out in the summer of 1947 in an attempt to control a severe outbreak of the Douglas fir tussock moth in the western part of the United States. Between May 22 and July 2, 390,881 gallons of DDT solution were sprayed by airplanes over 413,469 acres nearly all of which was in mountainous country. A few days after spraying, it was almost impossible to find living caterpillars in the area. Although a polyhedral virus disease killed mature caterpillars almost completely in the area infected and not sprayed, nevertheless had not the spray been applied in the areas involved severe defoliation would have ensued and many trees would have died.

Hawes and Eisenberg (U.S.D.A. *Bibliographical Bul. No. 8*) have compiled a bibliography on aviation and economic entomology. The material is arranged in chronological sequence, starting in 1919 with an anonymous contribution entitled "Bee-farmer Uses Airplane" and ending with a contribution of Wisecup brothers and Eide in 1945, which paper is entitled "Airplane Spraying of Rice Fields with DDT to Kill Mosquito Larvae."

Some conception of the extent to which airplanes are used for insecticidal dispersion in this country can be obtained from the reports from a few states. There are said to be 75 firms or individuals licensed to perform pest control by air in California where 296,000 acres were treated in 1946, and 500 custom rigs in Iowa and in southern Indiana, one to five rigs per county, which contract for anything from spraying an orchard to chemical weed control in corn.

The practical utility of chemical agents in controlling insect pests is indicated by the results of tests reported during the year. It is not possible to review more than a relatively small number of typical cases.

Those pests that affect corn are of paramount importance when we consider the amount of damage insects may do to this plant. For example, in 1946 the European corn borer cost American farmers at least $37,000,000. Eighty-four per cent of this damage occurred in Iowa, Illinois, Indiana, and Pennsylvania. This insect is one of the number of insect pests which destroy the crop or reduce the yield. (See "Insect Pests and Plant Quarantines.")

FOREST AND SHADE TREE PESTS

One of the most difficult tree pest problems in the country at the present time is that of controlling the bark beetle that transmits the Dutch elm disease. This disease is spread from the original source of infection, and in 1947 investigators at the University of Massachusetts stated that infected trees were found up to Jan. 1, 1948, in Massachusetts from Mt. Washington on the west to Raynham on the East. As far as the entomological aspects of the disease are concerned, it appears that there is a good chance that DDT sprays may be applied to elm trees and will protect them from bark beetle attack and hence inoculation. The exact dosage and the best method of application has not been determined, the matter still being in the experimental stage. However, the proper care of elm trees appears to reduce the risk of disease infection.

There is great promise that a solution to the gypsy moth control problem has been developed, as the application of small quantities of DDT by airplane gives excellent control and can be carried on efficiently and very cheaply. Some conception of the extent of these control operations and their success is contained in a report by Corliss (*Trees,* Nov.-Dec. 1947, p. 7). In 1944, 5,000 acres were sprayed, in 1946, 82,000 acres were treated, and in 1947, 163,000 acres, in all cases DDT being the insecticide employed. The treatment has been very effective and at the dosages now used no hazard to watersheds is involved. The earliest experiments employed DDT at five pounds per acre, which caused a minor mortality to birds, but further experience indicated that a dose of one pound of DDT would be adequate and in some cases even less would suffice. At one pound per acre no mortality or disturbance to birds was noticed. Insects other than the gypsy moth are killed, but the areas treated are rapidly populated with these other species and not with the gypsy moth. The damage to fish in brooks and ponds when DDT is used at one pound per acre is negligible. No burning of the foliage of forest trees has been noticed when the recommended rates of application are used.

Among forest insect pests are several species of sucking insects which cause peculiar injury to the tree. Anderson has investigated the injury caused by the Saratoga spittle bug to jack pine and red pine in northern Wisconsin. The adults feed on the needle-bearing portions of the branches, and the location of feeding is indicated by necrotic spots in the inner bark. The resin infiltrates into the conductive tissue and apparently interferes with water conduction. The ultimate result is the yellowing of needles and the death of branches. This injury under natural conditions is associated with heavy spittle bug attack, and prevention of insect feeding prevents the injury from taking place. A further report of Anderson's investigation is contained in the same journal. He finds that eggs of the spittle insect are laid in the needle sheaths of pines and in buds, several species of hardwoods also being utilized by the insect. Nymphs are found on a total of 36 species of herbaceous plants and low-growing woody plants, and adults feed chiefly on the needle-bearing twigs of pine. Any cultural practices in the plantation which reduces the number of nymphal host plants assist in depleting the population of this pest.

The allegheny mound building ant, *Formica exsectoides,* is a serious pest of white pine plantations in northeastern United States, being particularly abundant on sandy soils. The biology and control of this insect has been investigated by Elizabeth Haviland. This author obtained the best results with sodium fluoride, a barrier being placed around each mound. However, unpublished results of others indicate that Chlordane is probably the best chemical for the control of this species yet developed.

GREENHOUSE PESTS

Many of the newer insecticides developed within the last few years have been particularly valuable in controlling insect pests in the greenhouse, not only when the material was applied by the conventional methods of spraying or dusting, but also when aerosols were employed. Ludvik and Decker have investigated the toxicity of certain esters of phosphoric acids to aphids, particularly species of Myzus. Eight of the 46 compounds tested, all of them derivatives of phosphoric acid, and including hexaethyl tetraphosphate, were superior in toxicity to nicotine alkaloid. The most promising of these were tetraethyl pyrophosphate, tetrapropyl pyrophosphate, and tetrapropyl phenyl triphosphate. All of these may possess commercial possibilities. Pyrophosphates and triphosphates in general are extremely toxic to aphids.

Metcalf has reported on the relative toxicity of isomeric hexachlorocyclohexane and related materials to thrips. The gamma isomer was approximately 10 times as toxic by weight as p-p′ DDT, 25 times as toxic as Toxaphene, 50 times as toxic as hexaethyl tetraphosphate. The relative toxicities of the five hexachlorocyclohexane isomers to the greenhouse thrips were found to be gamma 1, alpha 1000, delta 10,000, beta and epsilon greater than 10,000. Certain other chlorinated compounds were found to be relatively non-toxic to thrips.

Smith, Fulton, and Brierley (*Agricultural Chemicals,* Vol. 2, No. 12, p. 28) have reported on the use of DDT and hexaethyl tetraphosphate applied as aerosols in control of certain pests of greenhouse plants. DDT settled on the plants and killed by contact or residual action. Five grams of DDT or 100 grams of aerosol solution per 1,000 sq. ft. of greenhouse space, equivalent to 10 pounds of solution per acre, appeared to be adequate. Hexaethyl tetraphosphate behaves in part as a fumigant. Hence the dosage is determined on the basis of the volume to be treated. One gram of this material, or 10 grams of aerosol solution per 1,000 cu. ft. of greenhouse space, was adequate. Hexaethyl tetraphosphate is soluble in methyl chloride, and this solvent, as well as Freon-12, was used in the tests, the formula containing approximately 10 per cent of hexaethyl tetraphosphate in anhydrous methyl chloride. The toxicant ingredients of the compound dissipated by the morning after an all-night exposure. To avoid plant injury, temperatures above 70° F. should be held.

According to a press release by the U. S. Department of Agriculture, aerosols containing hexaethyl tetraphosphate have given unprecedented control of the two-spotted spider mite on roses in greenhouses. The treatment increased the length of rose stems as much as 30 per cent and gave as much as a 30 per cent gain in bloom production.

PRODUCTS PESTS

Insect pests take a tremendous toll of grain from the farm storages through the warehouses and to finished products made from the grain. According to a recent report by the U. S. Department of Agriculture, insects living in farm grain bins, destroy 5 per cent or more of our nation's stored grains and cereal products every year and cause an annual loss estimated at 300,000,000 bushels of grain, worth over $600,000,000 at today's prices. This terrific loss is being carried principally by the farmers. In Mississippi alone, the loss to corn by the next summer may be total and is probably 25 per cent or more of the grain stored on the average. Unless the 1947 southern crop is fumigated, it stands a very poor chance of being of any value next spring. The problem of the proper treatment of grain is therefore acute at all times and anything which will add to the efficiency of the treatment is of great value.

According to Carpenter, preliminary tests indicate that a spray containing benzene hexachloride may possibly be used effectively on some of the more common stored insects in food processing plants and in warehouses. This material has both fumigating and contact effect. Srivastava and Wilson report that the residual effect from benzene hexachloride is considerable 24 hours after the chemical itself has been removed. In every case the addition of benzene hexachloride to another fumigant made it possible to reduce the amount of the fumigant required alone. In some instances the reduction was nearly 50 per cent. The contact effect is more effective than the fumigating effect because only when the material is well distributed through the grain is high control obtained in a short time.

PESTS AFFECTING DOMESTICATED ANIMALS AND MAN

Many of the recently developed insecticides have been found effective in the control of insects affecting man and domesticated animals. Benzene hexachloride has proved to be one of the most effective chemical agents now known for the control of certain animal parasites on cattle. A mixture of 3 to 5 per cent in pine oil squirted into a cow's ear has not only killed all the spinose ear ticks present, but has kept the ear clear of the ticks for at least 17 days. Furman reports that two species of cattle lice were eradicated by dipping in a 0.3 per cent suspension of benzene hexachloride. A third species of louse was completely eliminated by a single dip in .15 per cent benzene hexachloride. Complete kill of all motile stages, high ovicidal action, and failure of any emerging nymphs to survive on the treated animal were noted. Sweetman found that spray applications containing 0.2 per cent DDD and 0.2 per cent Chlordane were effective in controlling lice with no irritation or harmful effects on hogs. Chlordane acted the more rapidly of the two insecticides tried, causing the lice to begin to drop in a few minutes. According to Hixson and Muma, benzene hexachloride appears to be a very promising control for hog mange, caused by *Sarcoptes scabiei suis*. The low toxicity to the animals and the very good possibility of lice control make the chemical worthy of extensive testing. It is economical.

The control of flies in hog barns has always presented a difficult problem, but according to Munro, Post and Hoyman (*North Dakota Agricultural Bimonthly Bulletin*, Vol. 9, p. 109), a 50 per cent wettable powder of benzene hexachloride applied at 0.5 of 1 per cent concentration gave excellent control of the flies in those barns where the flies were abundant, but the objectionable musty odor detracted from its use in dairy barns or near food products. The hogs apparently suffered no ill effects, and no ill effects were observed on beef animals likewise thoroughly drenched. Dichlorodiphenyl-dichlorethane (DDD) was also quite effective in reducing the abundance of flies in beef cattle barns and sheep pens. Benzene hexachloride, according to Hixson and Muma, had a disagreeable and persistent odor and affected the flavor of eggs for a short period of time when used in poultry houses for the control of the chicken mite. Among the insecticides tried, azobenzene was the only one tested that acted as an ovicide. Pentachlorophenol also gave excellent results.

Fales, McGovran and Fulton state that a commercially prepared 100 per cent gamma-benzene hexachloride proved superior to DDT in killing both houseflies and mosquitoes and also superior to the standard cyclohexanone-lubricating oil-pyrethrins formula. Fay, Cole and Buckner have also studied the effects of various insecticides in controlling houseflies and malaria mosquitoes. These insecticides were compared as xylene or kerosene sprays on the basis of 100 and 200 mg. of the insecticide per square foot with the exception of pyrethrum combinations with piperonyl butoxide and piperonyl cyclohexanone which were tested at the manufacturer's recommendations. In order of their residual effectiveness over a 26-week period the insecticides were DDT, benzene hexachloride, Chlordane, Toxaphene, and DDD. The pyrethrin combinations had little residual effectiveness and di-2(ethyl hexyl) phthalate exhibited no residual effectiveness against *Musca domestica* or *Anopheles quadrimaculatus*. Cutkomp has published the results of certain experiments with residual sprays to control *Anopheles quadrimaculatus*. The type of surface was found important for residual insecticide application. After 29 weeks DDT was more effective than benzene hexachloride or Chlordane applied on a beaver wallboard. Benzene hexachloride produced more rapid toxic effects than DDT when residues were not so old. On a clay subsoil surface DDT formulations were not as effective as benzene hexachloride. The toxicity of Chlordane on clay was very low after one week. All three materials were much more effective on wallboard than on clay.

TOXICITY TO MAMMALS

Furman has reported that commercial benzene hexachloride of 12 per cent gamma isomer content has a relatively low autotoxicity when administered orally or to the skin of laboratory mice as a water suspension. There is no marked evidence that an accumulative action on mice occurs. No indication of toxic action to cattle was found when the material was administered orally in doses well above the range of probable ingestion in dipping procedures. No toxicity to cattle was apparent when dipped in suspensions of a concentration up to 0.5 per cent.

It has been reported by the U. S. Department of Agriculture that in the control of disease-carrying insects, it is possible in some cases to kill these pests by feeding certain chemicals to animals that will make the blood of the animals deadly to the blood sucking insect pests that prey on them. Body lice and yellow fever mosquitoes have been killed in this way. Of the compounds tested, benzene hexachloride was definitely poisonous to the rabbits used.

Twinn (*Scientific Agriculture,* 27:3, p. 97) has given a general discussion of insecticides, repellents and rodenticides of value in the field of public health. This discussion includes practically all of the more recently developed compounds of importance.

APICULTURE

The development of new insecticides for the control of insect pests has been of great concern to the beekeeping industry in the country because of the possible effects on the bee population. According to Eide, who tested a number of materials, using honeybees as an experimental animal, 2,4-D, piperonyl cyclohexanone, xanthone, Chlordane, and phenothiazine were non-toxic. Rotenone and dianisyl trichloroethane were toxic under certain conditions. Cryolite, calcium arsenate, dinitro compounds, DDT, sabadilla, hexaethyl tetraphosphate and benzene hexachloride were highly toxic.

The use of sulfa drugs to control American foul brood disease of honeybees continues to be investigated. Johnson has reported continued success, using sulfathiazole as a treatment. Eckert states that in certain cases the use of sulfathiazole or other sulfa drugs may be justified and advantageous. In other cases it may not be so. The disadvantages of such treatments are the masking of the foul brood disease of bees in areas particularly where the shipment of package bees is an important industry, as for example, in Mississippi, where the authorities have refused to permit the sulfa treatment to be carried out in many apiaries. Reinhardt states that sulfathiazole appears to have bacteriostatic or bactericidal action on the bacillus causing foul brood. There is a cessation of brood mortality in the presence of an adequate inoculum of the pathogen. A drug having such properties is all that is required to achieve a temporary cure because the bees normally remove dead brood. Permanent cure of American foul brood with drugs requires that infective material within the hive be removed or consumed while the drug is effective in preventing brood mortality.

TAXONOMY

During the year, a large number of taxonomic papers were published dealing with various families and orders of insects, and it is impossible to mention them all in this publication. A few of the more significant as related to their importance to economic entomology may be mentioned. Gurney (*Psyche,* 54, p. 145) published "Notes on Dilaridae and Berothidae, with Special Reference to the Immature Stages of the Nearctic Genera." These are predaceous terrestrial forms of Neuroptera. Ross (*Transactions of the American Entomological Society,* 73, p. 125) has given descriptions and records of North American Trichoptera, describing several new species and in some cases including keys to species. Sampson (*University of California Publications in Entomology,* 7, p. 365) has published a generic classification of California aphids by means of first instar nymphs. This is an important paper, as our descriptions of immature insects are all too few.

Walcott (*Fieldiana* 32, p. 61) has written a catalogue of North American beetles of the family Cleridae. These are predaceous, many of them preying upon pine bark beetles. Buchanan (*Proceedings of the Entomological Society of Washington* 49, p. 41) has published a key to the species of curculios attacking hickory in this country. Davis (*Proceedings of the United States National Museum* 96, p. 483) has reviewed the weevils of the tribe Ophryastini of America north of Mexico. Several new species are described. Dieke (*Smithsonian Miscellaneous Collections* 106) has published an important taxonomic paper on ladybeetles of the genus Epilachina, a genus which is phytophagous in habit and many species of which are of great economic importance.

Several papers of interest in taxonomy concern the order Hymenoptera. Banks has published a Synopsis of West Coast Cerceridae (*Psyche,* 54, p. 1). These digger wasps prey most commonly on beetles. Strandtmann has reviewed the North American species of Philanthus north of Mexico, a genus belonging to the family Sphecidae (Ohio State University Graduate School Studies). This covers 31 species of this genus of wasp, the bulk of the book being devoted to its taxonomy. Another group of Pemphilidine wasps has been studied by Pate (*Transactions of the American Entomological Society,* 73, p. 1). This author discusses the genera and species of this group, and includes descriptions of several new species. The area involved is the Caribbean.

Cushman has published "A Generic Revision of the Ichneumon-Flies of the Tribe Ophionini" (*Proceedings of the United States National Museum,* 96, p. 417). This group is parasitic on lepidopterous larvae. Another group of ichneumon flies of the genus Casinaria has been studied by Walley (*Scientific Agriculture,* 27, p. 364). This article concerns those species occurring in America north of Mexico. The several species of *Casinaria* play an important role in the economy of forest insect pests, particularly Lepidoptera.

Although ants constitute one of our most numerous groups of insects, the taxonomic work on the different groups has always presented certain difficulties. Smith (*The American Midland Naturalist* 37, p. 521) has published a generic and subgeneric synopsis of the ants of this country, based on the workers. In this she recognizes 61 genera. There is a key to subfamilies and under each subfamily a key to genera and to subgenera. Smith has also published "A Study of Polyergus in the United States, Based on the Workers" (*American Midland Naturalist* 38, p. 150). This genus includes the obligatory or true slave-making ants, commonly referred to as Amazons, the workers being entirely dependent on slaves for the construction of nests and for the feeding of themselves and their brood. There are only three recognized species and about a dozen subspecies and varieties of *Polyergus* in the world, but these ants have a wide distribution in the Holarctic region. A third paper by the same author (*Proceedings of the Entomological Society of Washington* 49, p. 29) deals with the genus Cryptocerus, a group of neotropical ants occurring in southern United States where three forms have been recorded. These ants are arboreal in habit, forming small colonies in the cavities of plants and feeding largely on honeydew and the flesh of small arthropods. Weber (*Annals of the Entomological Society of America* 40, p. 437) has published "A Revision of the North American Ants of the Genus Myrmica." This genus is holarctic in distribution and Weber gives a key to the North American species and subspecies of workers.

One of the most important contributions to the taxonomy of insects published in this country during the year is Hubbard's *Fleas of Western North America* (Iowa State College Press). This is an impressive contribution and covers 236 species and subspecies of western fleas. The first chapter is historical and deals with early and present-day siphonapterists and the research contributions to the subject. The second chapter deals with the medical importance of fleas in connection with bubonic plague and typhus, and also with fleas as household and farm pests. Directions for field collecting and laboratory technique appear in Chapter 3. The anatomy of the flea in relation to its taxonomy is discussed in Chapter 4. This completes Part I of the volume. Part II, which occupies 331 pages, covers the systematic classification of the 236 species and subspecies and includes keys to the families, genera and species. Part III, comprising 120 pages, is an extensive annotated host index. This is a very interesting and useful piece of work and will be welcomed by all those interested in medical entomology as well as those interested in taxonomy.

BOTANY

By Howard J. Dittmer
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EVOLUTION

Oskar Kuhn, a radical opponent of the theory of descent, claims that the fossil faunas and floras show only a succession in time but no true evolution. He bases his premise on the Algonkian fossils which have all types of invertebrates represented among them.

The presence of vestigial organs in the plant kingdom were discussed by Mahabale under four main types: the embryonic organs, later vestigial; the rudimentary organs exceptionally functional; arrested organs; internal vestigial tissue. Examples from the main groups of pteridophytes in terms of evidence from Devonian Floras, comparative developmental anatomy, and studies of mutation and natural selection were included.

CYTOLOGY

Chromosome mutations were induced in *Aloe arborescens* by Camora using X-ray with dosages ranging from 100 to 700 units. Analysis of the collected data shows that there are weak points in the chromosomes where breakage is more likely. Translocations may occur as a consequence of the formation of chromatic bridges.

Warmke reports that the treatment of living excised roots in vials partially filled with water at O° C. for 1½ hours before fixation in cold Benda's fluid was found to shorten chromosomes and to preserve details of chromosome morphology in a number of plant species.

Cytological studies of the Alismaceae and Bambuseae families were made by two different investigators. The action of colchicine, nicotine, temperature, and x-ray were observed on the root tips of *A. cepa*. Chromosome counts for various species of *Cassia, Hippeostrum, Gasteria,* and Aloe were also reported.

Four species of the genus *Coffea* were included in a study which investigated polyembryony, embryoless seeds, and double embryo sacs. All conditions were observed in members of this genus.

GENETICS

Some of the facts and theories as to the genetic basis for hybrid vigor and its relation to corn breeding are reviewed by Richey. He concluded: (a) that the interaction of dominant favorable genes remains the most probable explanation for hybrid vigor, (b) that the relative importance of hybrid vigor and of inherent productiveness as causes of the high yields of corn hybrids is not known, but (c) that the evidence continues to accumulate that the highest yields tend to be obtained when the best products of selection are used in hybrid combination.

A study was made by Guard of a tomato plant bearing abnormal fruits. These fruits consisted of an excessive number of carpels which did not fuse. The inheritance of this character indicated that it was due to the effect of a single recessive gene.

A significant increase in X-ray induced mutations in *Aspergillus terreus* and *Trichophyton mentagrophytes* was observed if the spores were previously irradiated with infrared radiation from 7,000 to 18,000 Å, with a maximum effect of 10,000 Å. The infrared alone did not produce mutation.

Colchicine was ineffective in inducing polyploidy in *Penicillium notatum* for Sansome and Bannan.

ECOLOGY

Baxter described the occurrence and role of fungi in plant succession in the major forest types of Alaska. The series included (1) forest and fungus succession of interior river valleys with meandering streams, (2) forest and fungus succession after the retreat of a mountain glacier, (3) forest and fungus succession where flora includes species characteristic of both coastal and interior forests, (4) forest and fungus succession of Kodiak Island, and (5) forest and fungus succession after the retreat of a glacier in the Pacific Coast region.

The timberlines of northern America were interpreted by Griggs as well as a study of recession of Mt. Washington, New Hampshire. He states that the size of the trees gradually decreases on higher slopes until it reaches a scrub 2-3 feet high. In the most exposed habitats, all upright branches are killed back, reducing the trees to completely prostrate carpets. The author concludes that the trees are slowly losing ground and that this is evidence that the climate is now more severe than formerly. The need for studies of tension zones between ecological units generally is emphasized so that such a study might provide a basis for the forecast of climatic change. Understanding of local trends of climatic change is important in shaping many long range human policies such as forest management, irrigation, and even city planning.

Douglass estimated the age of the General Sherman Sequoia tree to be 3,500 years, ± 500 years from cores taken on a burnt face. A study of other fallen trees in that vicinity showed that resistance to decay was greatest in the outer heartwood. The bark and sapwood often decay completely in 60 years. Vertical uniformity of ring growth was excellent up to within 30 feet of the top in a 265-foot tree.

Life zones based on climate or physiography proved less satisfactory than one based on the dominant species of the climax vegetation. In the northern intermountain region, between the divides of the Rocky Mountains and the Cascade Mountains, south to 45° N. latitude, 10 vegetation zones may be recognized: sedge-grass zone, above upper timberline; spruce-fir zone; arborvitae-hemlock zone; Douglas fir zone; Ponderosa pine zone; juniper-pinon zone; fescue-wheatgrass zone; wheatgrass-bluegrass zone; needlegrass-grama grass zone; and sagebrush-grass zone. Daubenmire made the above classification and further states that most plants are subordinates that depend on the presence of the few dominants which control the micro-environment. Animals, likewise, are usually subordinates, because they depend on the plants, directly or indirectly for food and shelter.

SYSTEMATIC BOTANY

A French paper recorded the success of growing the common mushroom, *Psalliota campestris*. Manures from horses which have had molasses mixed with fodder brought about a more complete ammoniacal fermentation.

The explanation for the reasons of using scientific and common names in plants was given a popular presentation by Svenson in "What's in a Name?"

Although the early followers of Buddha Gautama were not devoted to horticulture, certain plants native to India have been widely dispersed because of their connection with the religion. Burkill recounts the history of some of these plants, including *Nelumbium nelumbo*, the Sacred Lotus which was especially venerated as an honorific; *Ficus religiosa*, the tree under which Buddha attained enlightenment; and *Shorea robusta*, the species of tree under which Buddha was presumably born.

This section includes the most diverse papers and also the most numerous. Taxonomy of the algae, fungi, lichens, liverworts, mosses and ferns is included in addition to the work on the seed plants and articles on Paleobotany.

MORPHOLOGY AND ANATOMY

Relations between tissue organization and vascularization in leaves of certain tropical and subtropical dicotyledons were studied by Wylie. He observed that differences in the organization of the nonvascular tissues are related to intervascular transfer and are significantly correlated with the vascularization of the leaf blade.

Laticiferous tubes were described in *Eucommia* by Varossiean who found them quite different from those of the *Euphorbia* and *Cannabis* types. They were located in the primary bark, pith, and secondary phloem—a situation different from such tubes found in any other plants.

Following the formation of the root apical meristem, the stele and cortex promeristems enlarge mainly by intercalary growth to form the embryonic stele and the embryonic cortex, respectively, of the dormant embryo. Allen continues his description of the apical meristems of *Pseudotsuga* by describing the shoot apex as it arises from the free apex of the embryo as a result of the activity of surface cells. There is no "dermatogen" present at any stage of embryogeny. The root apical meristem is divided into three mother-cell zones and from each zone is derived respectively the embryonic stele, embryonic cortex, and the column, the latter giving rise to the bulk of the root cap.

WATER RELATIONS

A new method which makes it possible to measure cell permeability to water by single weighings was proposed by Homes. He found that the cell permeability of Dahlia roots to water increases with the level of protoplasmic hydration.

A critical study of the Torsion balance method of measuring transpiration was made by Weinmann and LeRoux. Their study of cut plants and intact plants of grains showed a correlation of only + 0.319 which indicated that determinations of water loss from cut plants can not be used as indices of true transpiration rate of the intact plant.

MINERAL NUTRITION

Aiyar observed the effect of soils deficient in PO_4 on root development of rice. There was an extraordinary elongation of the primary roots and an absence of secondary surface roots. The roots were deep reddish brown in contrast to the white color of the roots of fully matured plants. The addition of N or K did not alter this situation unless PO_4 was also added.

Mineral nutrition studies include a wide variety of plants in relation to many factors of growth. Included were such titles as, "intensified cropping to diagnose mineral element deficiencies"; "a method to determine relative borax contents of soils"; "the influence of soil aeration on the growth and absorption of nutrients by corn plants."

The significance of trace elements in plant growth assumes greater importance as methods of diagnosis become refined. Boron, for this reason, is now being thoroughly studied in relation to nitrogen metabolism and also in relation to the distribution of all major elements in plant tissue.

Magron reported that seedlings of *Solanum tuberosum* grow vigorously in virgin soils, permeated with mycorrhizal fungi, as long as their roots retain symbiotic association with the endophytes, through the agency of which they may obtain K, even from K-deficient soils, as well as N from organic nitrogenous soil matter.

The effect of rubidium, vanadium, copper, potassium, magnesium, calcium, phosphorus, sodium, zinc, and lead were investigated in their connection with absorption, growth and toxicity in plant development.

The role of zinc in Florida crop production was observed by Rogers. The content of virgin soils is about two pounds per acre and even though the yearly losses are small, it may be necessary to apply 10-20 lbs. per acre or to use a spray with 2-4 lbs. of $ZnSO_4$ per 100 gallons of water. Of the quantity applied, only a part is fixed by the soil, the remainder being leached away or used by the plants. Some of the zinc may be made unavailable to the plants by being changed to zinc carbonate, so that many users prefer to spray the plants directly.

The interrelations of the soil, atmosphere, and the plant and animal cycle in relation to health and disease was discussed by Anchter. Bonner described the role of organic matter in the nutrition of rice. He also confirmed earlier investigations that rice seedlings utilized ammonium rather than nitrate as a source of nitrogen.

PHOTOSYNTHESIS, PIGMENTS

Various papers were written on the position of chlorophyll and the carotinoids within the plastids of the leaf and the effect of these pigments of food synthesis. Strain summarized much of the work in this field in pointing out that xanthophylls and carotenes in conjunction with chlorophylls help maintain the universe of living organisms. Altogether, in the past 50 years, some 70 to 80 xanthophylls and approximately a dozen carotenes have been isolated. Strain gives a résumé of these pigments, their sources, both in animal and plant matter, their function in plant, fishes, birds, and man, the complexity of their mixtures as they occur in pigments, the isolation of xanthophylls and carotenes from the petroleum extraction method to the separation by chromatographic adsorption procedure, properties and chemical structure of these pigments and their action in living organisms.

RESPIRATION, FERMENTATION

Prevót measured the respiration of different regions of the root for several species and found the rate higher in the apical region than the distal regions. The fruits of *Hedera helix L.* were observed by Ulrich to have a gradual increasing rate of respiration in inmaturity up to a certain weight. After that point, the rate decreased until in the ripe fruits almost no CO_2 was produced.

The effect of inhibitors on the respiration and storage of cottonseed was investigated in Louisiana and disclosed that most deterioration which takes place in stored cottonseed is due to the action of enzymes in the seeds rather than to microbial activity.

GROWTH, REPRODUCTION

Slankis cultivated tomato roots in White's nutrient solution and reported best results at a pH 4.2-4.7. The peak of optimum growth was at pH 4.3-4.4. He also found that sterilization of the solution at 120° for 30 minutes instead of 15 permitted better growth—while sterilization at temperatures between 143-151° C. so altered the composition of the medium (split products of sugar) that root growth was depressed.

Mosses were successfully cultured in the dark on nutrient solutions containing glucose. No chlorophyll was formed but shoots developed on the protonemata from existing buds but light seems to be required for the origin of buds.

A review of the literature on plant tissue culture was made by White, bringing his review on the same subject, published ten years earlier, up to date.

GROWTH SUBSTANCES

Roots of young pecan trees were treated with indolebutyric acid and naphthaleneacetamide by Blackmon, who reported better growth from these substances than other growth-promoting chemicals, however, neither of the chemicals proved effective in preventing the shedding of pecan nuts.

W. J. Robbins has maintained tomato root tips in culture solutions through 125 transfers covering a period of more than ten years. The roots will synthesize biotin and pyridoxine if the solution is supplemented with thiamine or thiazole. There has been no evident change in the genetic nature of the tomato roots after ten years of culturing.

In a recent review, Went discussed the Avena method for the analysis of auxins, the chemicals which comprise the auxins, the form in which the auxin is found, auxin transport, the enzymatic aspects of auxin, and the processes in which auxin takes part.

RADIATION EFFECTS

Experiments concerning photoperiodism and sex in corn, bromegrass, oats, tobacco and *Kalanchoe* were reported by a number of investigators. In most cases the length of day has not only an inhibiting physiological function in the production of sex tissues but it may under some circumstances cause a sex reversal.

The relation of the photoperiod on the absorption and utilization of various soil nutrients was also considered with very definite results associated with changes in length of day.

Tubbs investigated the photoperiod of *Artemisia vulgaris* and induced it to flower under longer periods of illumination than the 12-12½ hours of daylight it normally received in Ceylon. The average extra illumination given was 6¾ hours daily.

OSMOSIS, PERMEABILITY

Plants of the Characeae were used in an experiment to determine the effect of heavy water and methyl alcohol (5 per cent solution). Cells of the plant were killed at a lower pressure with the alcohol than with heavy water.

Wieler set forth a theory of the growth in thickness of plant cell membranes in stating that it is purely a mechanical process, exactly comparable to spheritic precipitations with a honeycombed structure, *e.g.*, of zinc phosphate. These spherites are Traub cells, and their laws of development, which can be studied directly, are applicable without change to plant cell membranes. Their envelope is a precipitation membrane by which the solution penetrates in droplets and is precipitated in the inner solution, likewise in the shape of spheritic droplets, thus causing the honeycombed structure. The droplets assume an angular shape by their own pressure and that of the vesicle, and adhere to one another in radial and tangential direction, thus causing stratification. Wieler concludes that all honeycombed structures occurring in organic nature are of mechanical origin, *e.g.*, starch grains.

GERMINATION, DORMANCY

The effect of penicillin on seed germination was studied by Smith who reported that the various compounds of this substance had no inhibiting effect. When in an impure state, along with phenylacetic acid, indoleacetic acid, and furoic acid it may have an inhibiting effect and stunt root growth but this is owing to the aromatic acids rather than penicillin.

Orchid seeds were found to require a fungus for growth but seeds will germinate and grow for a time in soils in which the fungus has grown but was killed off, but will not develop in soils where the fungus has never grown. This indicates that the fungus secretes some substance into the soil which the orchid seeds require.

A new scarifying method for small seeds was described by Bledsoe, who claims it can be adopted for scarifying other seeds.

Other papers in this section included studies on temperature extremes in the germination of seeds, various storage methods, viability and vernalization.

Studies on seed coat impermeability of the Leguminosae by the Boyce Thompson Institute disclosed some subfamily differences. Seeds of members of the Papilionoideae were made permeable by shaking in a glass bottle 20 minutes, but soaking in absolute alcohol was without effect. Seeds of the Caesalpiniodeae were made permeable by soaking in absolute alcohol for 72 hours but, with one exception, were not affected by shaking. Seeds of Mimosoideae were intermediate in position, some responding to shaking and some to alcohol soaking.

TRANSLOCATION, STORAGE

Balas and Selman studied the movement of substances in 8-leaf tomato plants and noted that the total dry matter formed by leaves is greater in summer than in winter. This per cent differs little between morning and afternoon, suggesting that most translocation takes place concurrently with assimilation.

TOXICITY

Herbicidal effectiveness of many of the new hormone compounds, especially 2,4-dichlorophenoxyacetic acid, was investigated by many research workers. Allard and Swanson noted the effect of this substance on the seedlings of 22 crop plants and compared its reaction to several of the other herbicides. DeRose pointed out the danger of using such compounds too freely because of its lasting qualities in the soil and its inhibiting reaction on the germination of newly planted seeds.

The influence of artificial rainfall on the effectiveness of 2,4-D in oil or an aqueous solution of its ammonium salt indicated that in regions of heavy rainfall, the oil base should be used since the aqueous solution is much more easily washed from the plant and greatly inhibits the action of 2,4-D. With aqueous solutions, however, the effectiveness is not greatly retarded if the rain occurs at least six hours after the plants were sprayed according to controlled greenhouse studies. Field studies show that rain will inhibit the effectiveness of this hormone if it occurs within 24 hours of the time the plants were sprayed.

ECONOMIC BOTANY

By M. T. Henderson
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HYBRID CORN

Attempts have been made recently to estimate the value of hybrid corn in the United States. The percentage of total corn acreage planted to hybrid corn in this country increased from 0.1 per cent in 1933 to more than 50 per cent at present, and the acreage continues to increase. In 1947, several of the "corn belt" states devoted 95 to 99 per cent of their corn acreage to hybrids. Adapted hybrids yield 10 to 30 per cent more than the best open-pollinated corn varieties, with an average increase of about 25 per cent. It has been conservatively estimated that the total national production of corn during the critical war years of 1942-1945 was increased by approximately 1,800,000,000 bushels through the use of hybrid corn. The money value of this increase is in excess of $2,000,000,000. A specialized industry devoted to production and sale of hybrid corn seed has grown up in the past 10 years with an annual turnover of about $75,000,000.

The tremendous value of hybrid corn is a remarkable example of the application of knowledge gained from fundamental research. The basic principles underlying the superiority of hybrid corn were discovered during the course of experiments on a very modest scale conducted at Cold Spring Harbor, Long Island, and at the Connecticut Experiment Station in the early part of this century. (*Economic Botany 1,* 1947).

POTATOES

Since 1932, at least 34 new varieties of potatoes have been distributed to growers in the United States. Most of these new varieties are resistant to one or more of the major potato diseases and possess other desirable characteristics, such as high yielding ability and cooking quality. Based on the quantity of seed certified in 1946, the most widely grown of the new varieties are Katahdin, Chippewa, and Sebago.

One of the most serious diseases of

the potato in the United States is late blight. Although some degree of control is obtained by spraying with bordeaux mixture, the control is expensive and time-consuming, and all growers will not resort to this means of control. The ideal method of control should come from the development of highly resistant or immune varieties. This procedure became a possibility with the discovery of late blight immunity in a wild potato species, *Solanum demissum,* from Mexico. Through hybridization of this species with commercial varieties of potatoes, varieties have been developed which possess late blight immunity plus high yield and quality required of a variety for commercial production. Recently, the New York Experiment Station has released 11 new varieties which are immune to late blight (*American Potato Journal 24,* 1947).

The ring rot disease of potatoes was reported in the United States in 1932. It has spread rapidly until it now is present and causes appreciable losses in most of the potato growing areas of this country. Since seed stocks with only a trace of the disease may give rise to serious outbreaks wherever susceptible varieties are grown, ring rot has proved to be very difficult to eradicate. The most satisfactory solution to the problem would be the development of resistant or immune varieties.

Although breeding stocks with immunity to ring rot have not been found, a fairly high degree of resistance exists in a few varieties. These sources of resistance are not suitable in themselves for commercial production but, through hybridization with high quality susceptible varieties, strains which combine good quality with resistance to ring rot have been developed. One of these strains has been released for commercial production with the name "Teton" (*Phytopathology 37,* 1947).

WHEAT

The common bread wheat possess 21 pairs of chromosomes which fall into three groups or genomes, each having seven pairs of chromosomes. These chromosome groups are designated as A, B, and C. Cytogenetic research indicates that bread wheat has a highly complex evolutionary history. Knowledge of this history has been valuable in wheat improvement. The three chromosome groups were probably derived from three different species, none of which has economic value. Many valuable characteristics have been transferred from the durum and emmer wheats to bread wheat types through interspecific hybridization. The durum and emmer wheats are known to have the A and B chromosome groups present in bread wheat. Stem rust and leaf rust resistance transferred from emmer to bread wheat has brought a saving to the farmers in the spring wheat belt of the United States of more than $135,000,000 in a single season. Recently, a single variety of spring sown bread wheat which has resistance to stem rust transferred from a durum wheat was being sown on 15,000,000 acres in the spring wheat section of the United States and Canada. In addition to resistance to stem rust and leaf rust, resistance to loose smut, stinking smut, mildew, and Hessian fly has been transferred successfully from durum and emmer wheats to bread wheat (*Journal American Society of Agronomy 39,* 1947).

WHEAT—MOLDY

Sick or moldy wheat is a condition in which the kernels have a dull appearance, discolored or blackened embryos, low germination, high fat acidity, and usually show mold growth. Species of *Aspergillus* and *Penicillium* appear to be the chief causative agents involved. Inoculation of sound wheat with fungi isolated from sick wheat at high moisture levels resulted in development of all the symptoms of sick wheat. However, sick wheat does not appear to be due entirely to the growth of fungi, though the metabolic activity of fungi favors the condition. Some of the changes associated with sick wheat can occur at high moisture levels without the development of fungi (*Cereal Chemistry 24,* 1947).

FLAX

Rust constitutes one of the most serious diseases of the flax plant. Not only do varieties of flax vary considerably in their reaction to rust but the flax rust fungus shows a high degree of variability in its pathogenicity on various flax varieties. More than 100 distinct physiologic races of this fungus, distinguished by their pathogenicity on 16 varieties of flax, have been identified. No variety of flax has been found that is resistant to all races found in North and South America. However, it may be possible to develop such a variety by combining through hybridization genetic factors for resistance to flax rust found in several varieties. Genetic research on the inheritance of resistance to rust in flax indicate that most of the genes for resistance occur in three series of alleles or three linkage groups. This simplicity of inheritance will make more difficult the tasks of combining resistance from different varieties due to its interference with the occurrence of new combinations (*Journal Agricultural Research 74,* 1947).

TOBACCO

The blue mold disease of tobacco seedling beds is a cause of serious damage in the southeastern tobacco growing states of Georgia, North and South Carolina, and Virginia. Epidemics of the disease have occurred each year since 1931, causing both loss of plants and delay in transplanting seedlings to the field. In 1945, 90 per cent of the seedling crop of some areas was delayed 10 to 20 days in transplanting to the field.

Research has been underway for several years in an effort to discover an effective control for blue mold which is easy to apply and inexpensive enough to be feasible. Results with some of the organic fungicides have been very promising. Effective control of blue mold in greenhouse and plant bed tests was obtained with sprays of bismuth subsalicylate, benzyl salicylate, acetyl salicylate, salicylamide, salicylic acid, sodium salicylate, benzoyl peroxide and Fermate (ferric dimethyldithiocarbamate). Of even greater interest, certain of these fungicides were just as effective when used as dusts for the control of blue mold. Compounds which were fungicidal as dusts and were physically suitable for dusting included bismuth subsalicylate, zinc salicylate and Fermate. Combinations of the salicylates and Fermate proved more effective than either of the components alone. These organic fungicides are relatively inexpensive and, when used as a dust, are easily applied (*Phytopathology 37,* 1947).

TOMATOES

Although the occurrence of the late blight disease on tomatoes has been reported repeatedly, it had never reached epidemic proportions until 1946. The disease has caused tremendous losses in potatoes for a long period but resulted in only slight damage to the tomato crop. However, in 1946 tomatoes in the entire east coast of the United States suffered severe losses from late blight. Some of the factors contributing to the epidemic are now becoming known. It appears evident that the disease began its development on tomatoes in the fall crop (1945) on the west coast of Florida and became destructive in the winter seedling beds, continuing into the spring. Inoculum of late blight was moved northward up the coast with the shipment of young plants in the spring where favorable weather conditions made possible the serious occurrence of the disease. Analysis of the causes of the epidemic indicate that rainfall was not as important in spread and development of the disease as were prolonged periods of high humidity since the casual fungus was relatively inactive unless the relative humidity was 95 to 100 per cent for more than 15 hours. During periods of favorable weather spores of the late blight fungus were carried distances of 30 miles or more by the wind (*Phytopathology 37,* 1947).

SOYBEANS

The Lincoln variety of soybeans produces three-fourths of the total soybean crop of the United States and is still increasing in importance. The variety originated from a natural cross between two introduced varieties at the Illinois Agricultural Experiment Station. It is outstanding in yield, quality of seed, standing ability, and oil content. The variety is adapted to the north-central area.

CHINESE CHESTNUTS

The Chinese chestnut appears to have more value than any other species of chestnuts for growing in the United States. This species and the unpalatable *Castanea mollissima* are the only species that are effectively resistant to chestnut blight. Chinese chestnut trees reach about the same size and shape as the apple tree, and it is similar to the peach in climate and soil requirements. Trees usually do not bear their maximum yield of nuts until they are 10-12 years old (*American Nurseryman 85,* 1947).

BERMUDA GRASS

Plant breeding research with Bermuda grass at the Georgia Coastal Plain Experiment Station, Tifton, Ga., beginning in 1937, has resulted in the development of a new superior variety of that important southern pasture grass. The breeding program was begun with 5,000 seedlings from common, Tibt, and two South African Bermuda grass strains. One of the best of these plants was increased vegetatively and has been named Coastal Bermuda. The Coastal variety equals or surpasses other Bermuda in all characteristics. It appears to be immune to the root-knot nematode, makes good quality grass hay, has exceptional longevity and produced nearly twice as much beef as common Bermuda grass in grazing trials (*Journal American Society of Agronomy 39,* 1947).

SEED YIELDS IN FORAGE GRASSES

Several investigators have reported increased seed yields in forage grasses from burning the sods, although the cause of these increases was not determined. During 1947, a report of results from burning the dead grass on sods of red fescue indicate that the increased seed yields obtained were probably due to a reduction in disease and insect injury. Burning in plantings where the disease incidence was less than 10 per cent had no effect on yield, whereas, on plots having severe disease infection burning increased seed yields materially (*Journal American Society of Agronomy 39,* 1947).

WEED CONTROL—2, 4

Dichlorophenoxyacetic acetic (2, 4-D) is effective as a herbicide when applied as a spray or dust on the foliage of various broad leaved weeds or to the soil in which these plants are growing. In general, most lawn grasses, such as bluegrass, red top, and red fescue, are relatively resistant to 2, 4-D but show some temporary degree of checking in their rate of growth. To hasten recovery of lawn grasses from the depressing effect of 2, 4-D, it has been found helpful to apply a readily available form of nitrogen fertilizer at the time of application of the herbicide. Experiments are now being conducted to determine the effectiveness of using a mixture of 2, 4-D and complete fertilizer in dry form for weed control in lawns. Preliminary results indicate that weeds can be controlled effectively in this manner (*Botanical Gazette 108,* 1947).

Interest is being shown in the possibility of controlling certain broad-leaved perennial weeds in small grains with 2, 4-D. If a crop of grain can be obtained simultaneously with the weed control measures, the cost of the control will be reduced. Spraying wheat, oats, and barley in the jointing and boot stage with the concentration of 2, 4-D required for weed control caused considerable depression in yields. However, the same applications made before jointing or after heading stages of growth did not seriously reduce yields (*Journal American Society of Agronomy 39*, 1947).

WEED CONTROL—2, 4-D.

Preliminary experimental results on the use of 2, 4-D for pre-emergence weed control in corn have been promising. The corn was planted May 31, and 2, 4-D was applied to the soil surface June 7, two days before emergence of the corn seedlings. Annual grasses as well as broad-leaved weeds were effectively controlled for about six weeks. An application of 2.7 lbs. of 2, 4-D per acre had no detrimental effect on the yield of corn (*Journal American Society of Agronomy 39*, 1949).

NEW TECHNICAL PERIODICAL

Publication of a new technical periodical entitled *Economic Botany* to be devoted to applied botany and plant utilization was initiated in 1947. The new journal is being published quarterly with E. H. Fulling of the New York Botanical Garden as its founder, manager, editor, and publisher. In addition, there is a staff of six advisory editors. The first edition was for the period January-March 1947. In the first issue, W. J. Robbins, Director of the New York Botanical Garden and one of the associate editors of the periodical, states briefly the justification for a new botanical magazine devoted solely to economic botany. It is pointed out that man is dependent on plants for all of his basic needs—food, oxygen, fuel, clothing, shelter, medicines, and many comforts and conveniences. In fact, the animal kingdom could not exist without plants. Yet there are relatively few periodical magazines devoted exclusively to the economic value of plants. The new magazine is designed to bridge the gap between knowledge gained from fundamental research and its application.

BOOKS

Root Disease Fungi—S. D. Garrett, Chronica Botanica Co.

Viruses and Virus Diseases of Plants—Melville T. Cook, Burgess Publishing Co.

Elements of Soil Conservation—H. H. Bennett, McGraw-Hill Book Co.

Luther Burbank—A Victim of Hero Worship—Walter L. Howard, Chronica Botanica Co.

Vegetable Growing—J. S. Shoemaker, John Wiley and Sons, Inc.

The Nature and Prevention of the Cereal Rusts as Exemplified in the Leaf Rust of Wheat—K. Starr Chester. Chronica Botanica Co.

The Production of Tobacco—W. W. Garner, The Blakiston Co.

Diseases of Field Crops—J. G. Dickson, McGraw-Hill Book Co.

PERIODICAL PUBLICATIONS

American Botanist
5257 Hinesley Ave., Indianapolis.

American Journal of Botany
Botanical Society of America, Burlington, Vt.

American Naturalist
Science Press, Lancaster, Pa.

American Scientist
Yale University, New Haven, Conn.

Annals of the Entomological Society of America
Ohio State University, Columbus.

Botanical Gazette
5750 Ellis Ave., Chicago.

Botanical Review
Botanical Garden, New York City.

Journal of Economic Entomology
College Park, Md.

Journal of Experimental Zoology
36th Street and Woodland Ave., Philadelphia.

Journal of Mammalogy
University of Michigan, Ann Arbor, Mich.

Journal of Morphology
36th Street and Woodland Ave., Philadelphia.

National Horticultural Magazine
American Horticultural Society, Washington, D. C.

Quarterly Review of Biology
Mount Royal and Guilford Aves., Baltimore, Md.

Science
Smithsonian Institution Building, Washington, D. C.

Scientific American
24 West 40th Street, New York City.

Scientific Monthly
Smithsonian Institution Building, Washington, D. C.

Yale Journal of Biology and Medicine
New Haven, Conn.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ACADEMY OF NATIONAL SCIENCES OF PHILADELPHIA, 1900 Race St., Philadelphia, Pa.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, Smithsonian Institution Building, Washington, D. C.

AMERICAN ASSN. OF ECONOMIC ENTOMOLOGISTS, College Park, Md.

AMERICAN ASSN. OF MUSEUMS, Smithsonian Institution, Washington, D. C.

AMERICAN MICROSCOPICAL SOCIETY, Kansas State College, Manhattan, Kan.

AMERICAN MUSEUM OF NATURAL HISTORY, Central Park W. and 77th St., New York City.

AMERICAN NATURE ASSN., 1214 Sixteenth St., Washington, D. C.

AMERICAN NATURE STUDY SOCIETY, 5540 Pershing Ave., St. Louis, Mo.

AMERICAN ORNITHOLOGISTS' UNION, Ohio State University, Columbus.

AMERICAN PHYTOPATHOLOGICAL SOCIETY, Bureau of Plant Industry, Washington, D. C.

AMERICAN SOCIETY OF NATURALISTS, Ann Arbor, Mich.

AMERICAN SOCIETY OF ZOOLOGISTS, University of Chicago, Chicago, Ill.

BOSTON SOCIETY OF NATURAL HISTORY, 234 Berkeley St., Boston, Mass.

BOTANICAL SOCIETY OF AMERICA, Columbia University, New York City.

CARNEGIE INSTITUTE, Pittsburgh, Pa.

CHICAGO MUSEUM OF NATURAL HISTORY, Roosevelt Road and Lake Michigan, Chicago, Ill.

ENTOMOLOGICAL SOCIETY OF AMERICA, Columbus, Ohio.

EUGENICS RESEARCH ASSOCIATION, Cold Spring Harbor, New York.

FRANKLIN INSTITUTION, Benjamin Franklin Parkway at 20th Street, Philadelphia, Pa.

GENETICS SOCIETY OF AMERICA, Ohio State University, Columbus, O.

MUSEUM OF COMPARATIVE ZOOLOGY, Cambridge, Mass.

NATIONAL AUDUBON SOCIETY, 1006 Fifth Ave., New York City.

NEW YORK MICROSCOPICAL SOCIETY, American Museum of Natural History, New York City.

NEW YORK ZOOLOGICAL SOCIETY, 630 Fifth Ave., New York City.

PALEONTOLOGICAL SOCIETY OF AMERICA, American Museum of Natural History, New York City.

SHAW BOTANICAL GARDENS, St. Louis, Mo.

SOUTHERN CALIFORNIA ACADEMY OF SCIENCES, Los Angeles Museum, Exposition Park, Los Angeles, Calif.

UNITED STATES NATIONAL MUSEUM, Tenth and Constitution Ave., Washington, D. C.

DIVISION XXIII

MEDICAL SCIENCES

MEDICINE, PATHOLOGY, PHYSIOLOGY

By Hamilton Southworth
Assistant Professor, College of Physicians and Surgeons,
Columbia University

GENERAL

In the medical sciences, the year 1947 was the first really to emerge from under the shadow of the recent war. University teaching centers were beginning once more to hit their normal stride, and that part of the flow of scientific articles which had formerly been stimulated somewhat artificially by the grants of the Office of Scientific Research and Development had almost died away. It appeared that the significant new work was scattered over a wider range of subjects, and it was obvious that it emanated from a greater number of centers. Scientific workers in the Middle West and the South were much more active than before the war.

Chemotherapy remained the chief field of endeavor, but work with new antibiotics, such as penicillin and streptomycin, was outdistanced by the use of anticoagulants and of such a physiological blocker as caronamide. In addition, the new tool for biochemical and physiological research which the isotopes furnish began to produce interesting results. The tracing through its metabolic course of the molecule labelled by an isotopic atom may well open up the next big field of medical discoveries.

ANTICOAGULANTS

The clotting of exposed blood is nature's chief protection against hemorrhage, but undesirable clotting within the blood vessels is the cause of thrombosis and embolism, which together are responsible for more deaths of persons over 50 than any other process. Coagulation of blood often begins insidiously in a small vein of the foot or calf and spreads upwards. This process is called thrombosis. The free end of the clot, which is soft and friable, floats in the blood returning to the heart. If it breaks loose, it is swept through the heart and into the lungs, where it lodges in one of the tapering arteries to cause pulmonary embolism.

How the body prevents the clotting of its normally circulating blood is imperfectly understood, but one of the agents is heparin, a substance first discovered in 1916. It is a mucoitin polysulfuricester containing 45 per cent sulfuric acid, and its action may be dependent on its strong negative electric charge. Heparin has been prepared in pure form and may be administered either intravenously or intramuscularly. Unless its absorption is artificially delayed, its effect is of only 2-3 hours duration, and continuous or prolonged administration is therefore necessary. Its anticoagulant effect can be quantitated by measuring the clotting time of blood drawn from a vein, and dosage can be adjusted so as to reduce any tendency to thrombosis and yet to prevent overt bleeding. An overdose can be neutralized by the injection of protamine sulfate, which may act because of its basic charge.

Blood clotting can also be reduced by means of dicoumarol, a substance discovered as the result of study of the bleeding disease in cattle that is caused by eating spoiled sweet clover. It acts by blocking Vitamin K, which is necessary for the synthesis by the liver of prothrombin, an essential portion of the natural clotting system. Dicoumarol can be given by mouth, but the mechanism of its action means a delay of 36 to 48 hours before a significant effect is noted. The dosage of dicoumarol can be quantitated by daily measurements of the prothrombin time of the blood, and an overdose can be temporarily corrected by a transfusion of whole blood or plasma, and overcome, after the essential lag period, by a large intravenous dose of Vitamin K.

For several years the thromboembolism which is particularly common in patients kept at complete bed-rest has been treated or at times prevented in a number of hospitals by surgical ligation of the leg veins in which the phlebitis usually develops. This is a simple procedure, and the edema which at times follows it is of no great importance. But the facts (1) that it does not correct the fundamental thrombotic tendency, and (2) that the clot may have formed insidiously above the point at which the veins are tied, have shifted the therapeutic emphasis during 1947 to the use of anticoagulants. Successful treatment of the following conditions has been reported.

VENOUS THROMBOSES

Of patients with venous thromboses treated by the old conservative program of bed-rest and elevation, 12 per cent had subsequent thromboses, 19 per cent subsequent pulmonary emboli, and 6 per cent subsequent fatal emboli. In contrast, a summation of 13 reports of cases treated with heparin and/or dicoumarol showed 1.1 per cent having subsequent thromboses, 1.2 per cent subsequent pulmonary emboli, and 0.3 per cent subsequent fatal pulmonary emboli.

PULMONARY EMBOLI

In one large series treated conservatively, of patients who had suffered one non-fatal pulmonary embolus, about ⅓ had further pulmonary embolization, 18 per cent had fatal pulmonary emboli, and further thromboses occurred in 14 per cent. In the cases treated with anticoagulants, 1.1 per cent had subsequent pulmonary embolization, 0.9 per cent had fatal emboli, and 1.1 per cent had further thrombosis.

CARDIAC INFARCTION

Myocardial infarction due to arteriosclerotic coronary thrombosis has a high mortality during the first few weeks both because of the development of further thrombosis and because mural thrombi developing within the heart where its wall is damaged cause emboli. Anticoagulants would appear to be the logical preventatives for these complications, and a large study of their effects is now under way. Preliminary reports indicate that the mortality of cases complicated by the presence of repeated thromboses or emboli can be reduced by anticoagulants to that of the average case, and that, in a small series, the mortality of the uncomplicated case can be approximately halved.

ACUTE PERIPHERAL ARTERIAL OCCLUSIONS

A preliminary report on the combined use of anticoagulants and measures to relieve reflex vascular spasm shows survival of the extremity in 80 per cent when aggressive therapy was started within 24 hours.

FROSTBITE GANGRENE

In this condition, a sludge of red blood cells forms in the capillaries following the exposure to cold and leads to thrombosis and gangrene. It has been shown in animals and in human volunteers that heparinization as late as 48 hours after exposure will prevent ischemic necrosis. Control animals and humans exposed similarly to cold invariably developed gangrene.

EMBOLI IN ASSOCIATION WITH AURICULAR FIBRILLATION AND RHEUMATIC HEART DISEASE

Reports, though favorable, are fragmentary, but the logic for the use of anticoagulants in this condition appears sound. At the present time, there is difference of opinion as to the relative indications for anticoagulants and vein ligation in thromboembolism, but it is generally agreed:

(1) Early thrombosis without pulmonary embolism should receive anticoagulants.

(2) When the thrombosis is not below the common iliac veins, anticoagulants should be given.

(3) Anticoagulants are contraindicated in recent central nervous system operations, subacute bacterial endocarditis except in the presence of an embolic arterial occlusion, hemorrhagic blood dyscrasias, recent threatened abortions and post-partum cases within six weeks of delivery. When phlebitis appears in these conditions, vein ligation becomes the treatment of choice. In general, it is customary to initiate treatment with dicoumarol and to cover the 36 to 48 hours before this drug takes effect by means of heparin. The patient is kept on strict bed-rest for about six days and then ambulated progressively. In uncomplicated cases, the dicoumarol is continued for a total of 12 to 13 days, and two to three days later the patient is discharged.

Bleeding is about the only toxic manifestation of the anticoagulants and has been recorded as occurring in 2 to 4 per cent of cases. Careful attention to controlled dosage and to the contraindications for therapy should keep toxicity nearer 2 per cent and make real hemorrhage very rare. Furthermore, the appropriate antidotes as described above are promptly effective in controlling the bleeding.

ISOTOPES

When an isotope is introduced into a compound utilized by living matter, the compound becomes tagged and the course of its metabolism can be traced by mass spectrophotometric or by radiographic means. By using H^2, N^{15}, C^{13}, I^{131} or other isotopes, it may well be possible to solve many of the biochemical problems of metabolism.

HEMOGLOBIN FORMATION

The synthesis of protoporphyrin, which is the iron-containing component of the blood pigment, hemoglobin, has been investigated by means of N^{15}. Rats were fed with ammonia and also with glycine, glutamic acid, and other animo acids in each of which N^{15} had been incorporated. Two weeks later their hemoglobin was tested for its N^{15} content. It was found that the isotope concentration of the protoporphyrin was 5 to 13 times higher in the glycine fed animals than in all the others. It could then be calculated that the nitrogen in protoporphyrin is directly derived from glycine.

In further experiments glycine labelled with N^{15}, was fed to a man in large doses for three days, and the isotope concentration of his hemoglobin followed for the next seven months. It was found that the concentration curve rose rapidly for about 25 days, remained almost flat for the next 70 days, and then fell along an S shaped curve. This curve could not be the result of a single process in which molecules were synthesized and degraded at random. Instead, it appeared that the probability of a hemoglobin molecule being degraded depended on its age, and the obvious explanation was that the hemoglobin, once formed within a red blood cell, remained there until the cell was destroyed. Measuring from the midpoint of the rising to that of the descending curve gave an average life span of 127 days for the red cell. The S- shape of the descending curve made it clear that the protoporphyrin of the broken down red cells was not reutilized for new hemoglobin.

RADIOACTIVE IODINE

Of the five radioactive isotopes of iodine, I^{131} is proving the most useful in physiological studies, because it has the convenient half life of eight days. It has been known for some time that the thyroid collects far greater amounts of labelled iodine than do the other tissues. The uptake after an oral dose can be measured by a Geiger counter over the thyroid area or, conversely, by the percentage of the administered dose excreted in the urine, in as much as the quantities taken up by tissues other than the thyroid are small and relatively constant. Thus a so-called tracer dose of I^{131} is proving to be a new and reliable test of thyroid activity, provided the patient has received no other iodine in recent weeks.

Radioactive iodine has also proved useful in studying the physiology of the thyroid. In chicks treated with increasing doses of thyrotropic hormone, the uptake of I^{131} at first increases, but a point is soon reached above which further increases lead to progressive increments in the size of the gland but to no further augmentation of uptake. In other experiments on thyroidectomized rats, there is very suggestive evidence that thyroxin can be newly formed even when the thyroid has been totally removed histologically.

Another group of workers has produced goitres in rats by means of thiouracil and has shown that, though there is some transient initial uptake of I^{131}, the percentage retained is only about 10 per cent. This furnishes good evidence that thiouracil operates by blocking the introduction of iodine into any organic combination.

It has long been known that thyroid hormone depresses the elaboration of thyrotropic hormone by the pituitary and thus indirectly decreases thyroid activity. In hypophysectomized rats, however, it has now been shown that, whereas the administration of thyrotropic hormone leads to an active uptake of radioiodine, the administration of thyroxin plus the same amount of thyrotropic hormone greatly diminishes the uptake. This suggests that thyroid hormone also inhibits the action of thyrotropic hormone on the thyroid.

Radioactive iodine has been used successfully in the treatment of Graves' disease, but its exact place in relation to thyroidectomy has yet to be determined as well as its optimal dosage. In the detection and treatment of thyroid tumors, it has also been shown to be of value, especially in better differentiated tumors which have a high iodine uptake. From one rather limited series it has been estimated that roughly 15 per cent of thyroid carcinomas may be expected to accumulate radioiodine to a significant degree. This property has proved invaluable not only in locating early metastases by means of the Geiger counter but also in the therapy of such lesions.

CARONAMIDE

Little evidence has accumulated that large doses of penicillin are any more toxic than small ones. However, the cost of the drug makes doses of over 1,000,000 units a day an appreciable item of expense. Administration of penicillin by mouth has a less predictable effect on blood concentrations of the compound than has intramuscular injection and is more apt to give unpleasant side-effects, but its chief disadvantage is that about five times as much penicillin is required to have a systemic action. For these reasons much effort has been devoted to developing some means of preventing the body from eliminating so rapidly the penicillin it absorbs and thus of allowing smaller doses to be more effective.

It has been found that caronamide, which is 4^{1-} carboxyphenyl-methanesulfonalide, blocks the excretion of penicillin by the renal tubules. It seems to act as a substrate competitor with penicillin and has the clinical advantage that it can be given by mouth. Its acute toxicity for animals is low, the LD_{50} for dogs for instance being 1575 mg/kg. Given to children in oral doses of 0.1 to 0.4 gm/kg/day for one to three weeks, the only toxic symptom was an occasional skin rash. Adults taking two to four gms. orally a day showed no unpleasant side-effects save for rare instances of mild gastrointestinal complaints, which may with equal likelihood have been due to other medications simultaneously administered.

Volunteers were given an intramuscular injection of 100,000 units of penicillin both before and while they were receiving four grams of caronamide orally every four hours. In every one the penicillin level in the blood was higher while they were on caronamide, but the effect was variable. After four hours the penicillin level was from four to 22 times higher than it had been without caronamide. The duration of an appreciable penicillin blood level was also considerably increased. Experiments were then carried out to determine how much more penicillin had to be given without caronamide to achieve a blood curve comparable to that with caronamide. Except at the time of the initial peak, it was found that 100,000 units with caronamide gave significantly higher levels than 300,000 units without the blocking agent.

In another study the effect of caronamide was tested when penicillin was given by mouth. Blood samples obtained one and two hours after the ingestion of 100,000 units showed an increase of at least two-fold over the controls in 80 per cent of the volunteers and an increase of four-fold or more in 40 per cent.

It may be doubtful whether caronamide will prove useful in the treatment of the great majority of infections which respond to relatively small parenteral doses of penicillin, but in the drug-resistant case it may be very valuable, and there is the possibility that it may extend the field of usefulness of orally administered penicillin.

THE LESSER CIRCULATION OF THE KIDNEY

By means of an X-ray technique whereby the course of injected radio-opaque material can be traced in the animal body and especially through the renal circulation, a group of workers at Oxford have contributed fundamentally to renal physiology. They started with crush injury and observed in this condition not only a diminution in caliber of the femoral vessels but one of the renal arteries as well. The renal changes could be produced equally well by stimulation of the sciatic or the splanchnic nerves and did not occur when splanchnicectomy had been performed. It was thus apparent that neurogenic mechanisms were responsible.

Turning next to a more detailed study of the kidney, the Oxford workers showed that under normal conditions radio-opaque material introduced *via* the renal artery first fills the cortical area and then drains back into the renal vein, lingering longest in the medulla. In the stimulated kidney, however, the radio-opaque material never reached the cortex but rather concentrated in the medulla, and its appearance in the renal vein was accelerated. By studying the exposed kidney it was then shown that a thin stream of red arterial blood could be seen entering the renal vein in the stimulated kidney so rapidly as to indicate the presence in the medulla of some channel whereby blood could bypass the more usual renal circulation.

A difference in the circulation of the blood going to the cortical glomeruli and the juxtamedullary glomeruli had been described, but further histological studies supplemented by vascular injections of neoprene with subsequent digestion of the renal tissue to leave casts of the vascular trees, emphasized its importance. Whereas the efferent vessels of the cortical glomeruli break up into a fine, capillary net-work between the tubules, those of the juxtamedullary glomeruli open instead into a number of straight venules of large caliber called the vasa recta. These course in bundles down between the tubules of the medulla and loop back without a capillary bed to enter the interlobular veins. In stimulated kidneys these vessels were engorged, and the medullary by-pass which they formed provided an alternative, "lesser circulation" for the kidney. Study of human kidneys revealed a similar anatomical structure, and in some older and more diseased specimens atrophy of the juxtamedullary glomeruli was occasionally seen with replacement of their capillary beds by a single vessel, thus further simplifying the potential shunt.

The impact of these findings on current concepts of renal physiology may be enormous. With two potential circulations a further variable is introduced into the relationship between renal blood flow and glomerular filtration rate. Moreover there is the intriguing possibility that inasmuch as the vasa recta are anatomically in close connection with the thin segments of the loops of Henle the lesser circulation may play a special role in water reabsorption. Clinically an explanation is given for the mechanism involved in cases of bilateral cortical necrosis and for the acute renal failure of shock and crush injury. It is tempting, moreover, to speculate whether in so-called essential hypertension overactivity of the sympathetic nervous system may not result in excessive operation of the normal mechanism by which blood flow is diverted from the cortex with resulting chronic cortical anoxia.

HUMAN STARVATION

Reports of semi-starvation in the prison camps of Germany and Japan led to the setting up in 1943 at the University of Minnesota of a controlled experiment in human starvation, the final results of which have now been largely published; 36 healthy young males served as subjects and for three months were standardized on the average daily intake of about 3,150 calories which was needed to maintain balance. Then for six months they went on a semi-starvation diet of 1,760 calories, planned to correspond with that reported from Germany and noticeably low in both protein and fat. At the end of this period, they were rehabilitated on a full diet and their recovery quantitated.

During the starvation period there was a mean weight loss of 37 pounds, which represented 24 per cent of the control body weight. Most of the weight loss was from the muscles, and there was a notable shrinking of the heart as seen by X-ray. The loss in strength for a single, voluntary, muscular contractation was about 30 per cent, but the loss in ability to continue exhausting work amounted to nearly 80 per cent. The loss in neuromuscular coordination was less than that in strength.

The average pulse rate under basal conditions declined to 35 per minute, and the average basal oxygen usage from 229.2 to 140.6 c.c. per minute. Both arterial and venous blood pressures fell, and the oxygen content of the mixed venous blood decreased 35 to 40 per cent.

Sensations of hunger, weakness, and depression were constant, and there was a marked sensitivity to cold. Sexual function was decreased, but visual and auditory acuity was unimpaired. There were practically no vitamin deficiencies, but peculiar brownish-grey patches appeared on the skin, and the normal vascularity of the conjunctiva and sclera disappeared.

Most interesting of all, however, was the appearance of edema without any significant fall in the serum proteins. Studies of blood volume revealed a 21 per cent decrease in the hematocrit as a result of anemia, but the total blood volume decreased only 8.6 per cent. The absolute plasma volume actually increased 8.9 per cent, but relative to the body weight the plasma volume increased 41.7 per cent. Estimates of the extracellular fluid volume, which includes the plasma volume, were made by measuring the thiocyanate space. Relative to the body weight, the thiocyanate space increased from 23.5 to 34 per cent, but actually the total absolute space remained remarkably constant. It appeared, therefore, that famine edema is primarily due to the disproportion created by the inability of the body to reduce its extracellular fluid when wasting of its cellular tissue is marked. Whether this is due to the fact that shrinkage of the cells reduces the elastic hindrances to expansion of the intercellular spaces is a matter for conjecture. Clinical edema did not ordinarily appear until the "thiocyanate edema" amounted to more than 8 to 10 per cent of the body weight.

In the period of rehabilitation, calories were of primary importance, and only when calories were restricted did extra protein prove of especial value. With an average daily intake of 3,000 to 3,500 calories, it was estimated that 50 per cent restoration to normal could be anticipated in 3-4 months and perhaps 70 to 80 per cent in six months. Depression, apathy, edema, and bradycardia were rapidly corrected. Weakness, anemia, and lack of endurance proved more persistent.

METOPON HYDROCHLORIDE

Since 1929, with funds provided by the Rockefeller Foundation, the National Research Council has coordinated a program to study drug addiction and search for a non-addicting analgesic comparable to morphine. Drug number 359 of this systematic study is metopon hydrochloride, which is methyldihydromorphinone. It is derived from morphine and probably will remain more expensive than morphine.

Metopon, however, possesses certain advantages which fit it peculiarly for the relief of severe chronic pain such as that caused by cancer. Studies indicate that its analgesic effectiveness is at least double, and its duration of action about equal to that of morphine. It is nearly devoid of emetic action. Both physical dependence and tolerance to it appear to develop more slowly. In analgesic doses it produces little or no respiratory depression and much less mental dullness than does morphine. Finally, it is relatively highly effective by oral administration.

At the present time, metopon hydrochloride is being distributed by the National Research Council in 3 mg. capsules for the treatment of cancer alone. An initial dosage of two to three capsules is recommended, to be repeated only on the recurrence of pain. Reports have been received of its use in about 500 cases, and in only one instance has nausea seemed attributable to the drug. In two or three cases there has been unusual sweating. The principal difficulty has been the substitution of metopon where dependence on morphine or demerol was well established. Allowing, however, for this difficulty, 75 per cent of cases have had satisfactory relief of pain, and in many there has been striking improvement in the patient's general comfort together with a clearing of the dopiness and nausea due to morphine.

POTASSIUM DEFICIENCY IN DIABETIC ACIDOSIS

For several years, the customary treatment of diabetic coma has consisted chiefly of large doses of insulin, the replacement of lost fluids and electrolytes by the parenteral injection of isotonic sodium chloride, the correction of acidosis by means of sodium bicarbonate or lactate, and generally the infusion as well of 5 per cent glucose solution. In spite of these measures, a few cases have died due to a secondary collapse after the blood sugar, the CO_2 combining power, and the blood pressure have been restored to relatively normal values. Some of these patients have been described as showing shallow, labored respirations, extreme weakness, and dysphagia.

It has now been shown that in some of these secondary collapses the serum potassium falls to extremely low values (2-3 milliequivalents per liter), and prompt relief of symptoms follows the administration of potassium salts by mouth or intravenously. It has long been known that diuresis and dehydration are accompanied by loss of intracellular water and potassium. It has been demonstrated that insulin withdrawal leads to an increase in urinary potassium, and diabetic acidosis produces a particular drain on the body's reserves of fixed base. Also known has been the fact that an injection of insulin leads to a lowering of serum potassium values. When extra glucose and extra insulin are given, this process is magnified as glycogen reserves are built up again in the depleted liver. Finally, the customary use of normal saline while furnishing sodium ions further dilutes the body's potassium stores. Thus by the combination of several different mechanisms, the serum potassium level is selectively lowered.

The final picture is not unlike that seen in periodic familial paralysis and has also been described in chronic renal acidosis. One university clinic in reviewing its cases estimates that 4 per cent of its mortality in uncomplicated cases of diabetic coma could have been prevented by potassium replacement.

RICKETTSIALPOX

In June 1946, reports of an unclassified acute febrile disease were received from a single housing development in Kew Gardens on the outskirts of New York City. Within six months, 144 cases, all non-fatal, in greater New York, were worked up, and the epidemiology and symptomatology of a new disease entity were reasonably well understood. To the disease the name of rickettsialpox was given.

The disease is characterized by an abrupt febrile onset with chills, fever, headache, sweats, and backache. About one week prior to the fever, however, an initial lesion can be detected in about 95 per cent of cases. This consists of a firm, red papule which becomes vesiculated and then develops into a black eschar. Within a day or two of the fever, a generalized rash appears, which at first consists of maculopapular, discrete, and erythematous lesions following no definite pattern of distribution. Later a deep-seated vesicle develops in each papule, and eventually a black crust forms. There is no itching and no pain. Mucous membrane lesions are occasionally seen, but the palms and soles appear to be spared. The rash lasts nearly a week, and at no time does the patient appear dangerously ill.

Laboratory studies show a moderate leukopenia with little or no elevation of the sedimentation rate. The common agglutinations including those for the usual Proteus strains are essentially negative. Blood drawn from one of the early cases, however, was shown by mouse passage to contain a rickettsial organism, and sera from convalescent patients all show complement fixation in high titre for this organism. The rickettsia of Rocky Mountain spotted fever seems closely related antigenically, for there is an 80 per cent overlap in complement fixation.

The rickettsia obtained from the patients has been named rickettsia akari. It has also been isolated from allodermanyssus sanguineus, an ectoparasite of mice. It therefore appears that the new disease originates in mice and is transmitted by their parasites to man.

The chief differential diagnosis is between rickettsialpox and chickenpox, but the deep, firm type of vesicle in the new disease and the presence of the initial lesion are clinical points of distinction, while complement fixation serves as the final proof.

SURGERY

By Edwin J. Pulaski
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CHEMOTHERAPY OF CANCER

In the progress of surgery in 1947, several inhibiting agents have been found which are more or less effective in the treatment of tumors of man and animals. They may be divided into three groups, according to their action.

Necrotizing Agents.—It has been known for many years that certain bacterial products when administered parenterally to individuals with sarcomas produce severe hemorrhage in the tumors within a very short time with subsequent necrosis of the affected area of the neoplasm. The best known of these products is the polysaccharide derived from cultures of B. prodigiosus. Unfortunately, in most cases, the necrosis of the tumor is not complete, and, while certain of the tumors regress, some of the tumor usually remains viable.

Competitive Inhibitors.—It has been shown in cancer of the prostate that androgen is often an essential for the nutrition of the malignant cell. Tumors grow vigorously when androgens in appropriate dosage are administered, and the cells tend to wither away when the androgen supply is removed by orchiectomy, or when estrogen is administered. The effect of castration on carcinoma of the prostate gland is now well known. The use of estrogens with or without castration in such cases has resulted in varying degrees of success. Generally speaking, an increased survival rate prevails in treated cases. Equally important is the concommittant relief from pain, gain in appetite and weight, and the renewed vigor of the patient.

There is widespread current interest in treatment of cancer of the breast with hormones. It must be emphasized at the outset that the treatment is palliative and not curative. Radical surgery, with or without X-radiation, is still the only procedure recommended for curable lesions. Hormone treatment is presently reserved for trial for those patients whose disease has progressed too far to be amenable to operation. *Androgen* (testosterone propionate) appears to be useful chiefly in arresting the progress of bony lesions of cancer of the breast in some, but not all cases. Beneficial effects on the primary tumor or its spread to soft tissues are only inconstantly observed. The overall effects are best noted in pre-menopausal women. One undesirable feature of the treatment may be so-called chemical castration. *Estrogen,* in contradistinction to androgen therapy, may produce favorable but not necessarily lasting effects on soft tissue manifestations of cancer in older patients. The most suitable patients for estrogen therapy are 60 years of age or over. The treatment is contraindicated in patients who still menstruate or have recently done so, as it accelerates the growth of the cancer. At present, estrogen therapy seems useful as a palliative measure in older women with soft tissue manifestations of advanced cancer of the breast.

Agents Producing Nuclear Damage.—The damaging effect of irradiation on the cell nucleus has long been established. Certain radioactive isotopes, with a short period of half-life, now afford a means of presenting soluble radioactive chemicals to the organism as a whole. Radioactive phosphorus is probably the best therapeutic agent which is now available for polycythenia vera, and seems valuable in chronic lymphatic and myelogenous leukemia. The nitrogen mustards are another development in the cancer problem. They have been used in the treatment of Hodgkin's disease, with beneficial effects in selected cases. Still another agent capable of producing regression in cancer and leukemia is Urethane (ethyl carbamate). This compound is able to repress the growth of human prostatic cancer, probably in patients where a relapse has occurred after hormonal treatment with orchiectomy and estrogen. This drug is toxic, and great care must be exercised in its administration.

These advances represent a beginning of no small magnitude in the treatment of cancer. The main problem is to find an agent which is more specific for the cancer cell and less toxic to the human organism as a whole.

PLASTICS IN SURGERY

The use of plastics in the body is an outgrowth of tremendous expansion in the plastics industry. Plastics have been employed for years in the production of surgical and medical diagnostic and therapeutic instruments. The use of plastic materials in the body, however, is a recent application. The principle agents on which much experimentation has been done are methyl methacrylate (lucite and plexiglas); nylon; vinyl risins (Vinylite); polyethylene (Polythene); and regenerated cellulose (cellophane).

Methyl methacrylate is obtained by the polymerization of derivatives of acrylic acid. It is chemically inert and stable, is non-porous, transparent, and is easily sterilized. In repeated reliable experimental and clinical studies, it has been shown to be well tolerated in both animal and human tissues. Methyl methacrylate was found during the war to be well suited for the repair of defects of the skull, and various reports of its use in cranioplasty attest to its value. The properties of inertness in the presence of tissue juices, little or no resistance to X-rays, and no immediate or late tissue reaction make it admirably suitable for the closure of skull plates. Other uses found for methyl methacrylate are, in plastic surgery for sculpturally molded implants in facial deformities; and in the scrotum, for cosmetic and psychologic comfort, in patients who had had previous orchilectomies.

Nylon is a name applied to a group of polyamides, and chemically they resemble natural proteins. In the form of a filament, they have been used to fabricate such articles as parachutes. The use of parachute nylon as an inert, non-toxic wound dressing was described in the 1946 review. It has toughness, elasticity, impenetrability to granulation tissue, inertness, and ability to withstand repeated autoclaving without deterioration. Clinical trials of nylon as suture material have been reported in the literature. The principal objection to its use is the greater tendency of knots tied with the material to slip than when silk sutures are used.

Vinylite is a trade name applied to a variety of vinyl resins. The vinyl compounds have found extensive use in the formation of prostheses in plastic surgery, and in forming protective layers over the skin, as around ileostomies and colostomies.

Polyethylene, a polymer of ethylene, is a tough, thermoplastic resin that has a slightly cloudy appearance. It is flexible, resistant to water, and chemically inert. Its flexibility, translucency, toughness, and the facility with which it can be made into any size of tube or any thickness of film suggest multiple uses in the field of surgery. At the present writing, polyethylene is being evaluated in experimental animals to determine tissue reactions. In dogs, it has been found most promising as a permanent prosthesis in the repair of various organs, particularly in reconstruction of the common bile duct, in replacement of blood vessel segments for anastomosis, and as a dural substitute when this membrane was sacrificed. Polyethylene, after varying intervals of contact with tissues, appears unchanged, non-adherent, and does not become imbedded in dense scar tissue. Blood clotting is greatly delayed in polyethylene tubes, and penicillin is not inactivated in them after contact for more than 24 hours.

Cellophane has been evaluated in man and animals, but the reports to date are contradictory. It appears, however, that cellophane is, in general, a severe tissue irritant, of use in the body only to incite scar tissue.

TELEVISION IN SURGICAL OPERATIONS

During the year, surgical operations were televised for the first time at certain hospital centers and at a Clinical Congress of Surgeons. Generally, two cameras are used. One is fixed four or five feet above the operating table, and the second is installed in the gallery to give a general view of the operating room. The surgeon provides a running commentary through a microphone. The experiments have proved to be eminently successful. Images on the viewing screens were so sharp that, in one experiment, the numbers on a dollar bill placed on the operating table could be clearly read. Thus, demonstration of operations to a group of more than four may now be satisfactorily effected through the medium of television, even though, for the moment, reproduction is only in black and white.

BLOOD VOLUME AND THE CHRONICALLY ILL SURGICAL PATIENT

Intensive studies of chronically ill patients with infection and malignancy have defined a syndrome known as "chronic shock." This is characterized by weight loss, decreased blood volume, decreased blood proteins, increased interstitial fluid volume, and increased susceptibility to shock correctable by transfusion replacement of the blood volume deficit. For some time it has been known empirically that the chronically ill patient required blood preoperatively because it was the usual experience that, unless the patient received blood before operation, he could not withstand a major surgical procedure without developing complications. By determination of the blood volume, the actual deficiency can be measured quantitatively and corrected by the administration of adequate amounts of whole blood.

The plasma dye technic is used to determine blood volume, and the patient's usual weight is used on the normal reference standard. The mechanism of reduced blood volume in the protein-depleted patient is as follows: Osmotic pressure of the blood protein and tissue tension are perhaps two of the most important factors which regulate the interchange of fluid across the capillary walls. Inadequate protein intake affects not only the concentration in the blood but that in the tissue as well. Reduced total mass of hemoglobin and plasma proteïns is known to favor a loss of fluid and protein from the vascular to the interstitial fluid compartment, and reduced blood volume is a consequence. Studies on depleted patients have demonstrated the existence of a correlation of reduced body weight, reduced plasma volume, and reduced total mass of circulating blood proteins, both hemoglobin and plasma proteins.

The deficiency in blood volume represents a deficiency in hemoglobin and reserve stores of protein. The rate of synthesis of new hemoglobin is known to be limited despite its priority on protein. The administration of whole blood is the only means by which anemia can be corrected rapidly enough to permit urgent surgery. Transfusion of whole blood also deviates available protein to the more rapidly accomplished synthesis of tissue and plasma protein. Application of quantitative correction of blood volume deficits by whole blood transfusions in malignant disease and in chronic sepsis has yielded fruitful results.

EFFECTS OF WHOLE BLOOD TRANSFUSION ON PROTEIN METABOLISM

It seems that the use of whole blood transfusions as the only source of protein intake may obtain a positive nitrogen balance in patients during short but critical periods when oral protein feeding is inadequate or not feasible. From a nutritional viewpoint, whole blood transfusions exert multiple effects. The plasma proteins soon leave the circulation and become immediately available for body protein needs. By supplying preformed red blood cells, body protein, which by priority would have been used for hemoglobin formation, is made available for other body needs. The proteins of the red blood cells are not directly and immediately available for body protein needs. The red blood cells remain in the circulation of the recipient and produce an increase in blood volume almost entirely due to an increased red blood cell mass. However, with an increased red cell mass, more red blood cells reach the end of their life span, and their contained protein then becomes available for general body protein needs. That this protein so liberated is reutilized by the body is indicated by the finding that with an increased red blood cell mass, no increased urinary nitrogen excretion was noted.

D.F.P. (DI-ISOPROPYLFLOURO-PHOSPHATE)

D.F.P. is a compound developed during the war, which inhibits the cholinesterase of serum, red cells, muscle, and brain. It is cholinesterase that hydrolyzes the acetylcholine released at nerve endings. D.F.P. is a colorless, oily liquid which is prepared in peanut oil or propylene glycol as a 0.1 per cent or 0.2 per cent solution, in which it is relatively stable. Aqueous solutions are unstable. In this concentration it can be injected intramuscularly or applied to the eye without irritation. D.F.P. probably facilitates excitatory transmission in the cord and brain stem. The administration of 2 to 3 mg. intramuscularly decreases plasma and erythrocyte cholinesterase, and since the action is irreversible, even after a single dose the plasma esterase does not return to normal for many days.

Studies in man have included trials in myasthenia gravis, glaucoma, and postoperative ileus of the intestine. In myasthenia gravis, D.F.P. has proved less effective than prostigmine; the drug may be useful, however, as a supplement to prostigmine, diminishing fatigue when the patient first awakes. D.F.P. is about five times more potent and persistent a miotic than physostigmine. In concentrations of 0.05 to 0.1 per cent, which are non-irritant, it usually lowers the intraocular tension of glaucomatous eyes even where pilocarpine and physostigmine have failed. On the intestine, D.F.P. exerts a powerful stimulant action, with increase in tone, rate, and amplitude of contractions; this can be abolished by atropine. In postoperative paralytic ileus, present studies suggest it is at least as powerful as prostigmine; the two drugs given together have a potent cumulative action. D.F.P. appears to have a promising future both in therapeutics and for the light it may throw on the mechanism of neuromuscular transmission.

VAGOTOMY FOR PEPTIC ULCER

Mention was made in the 1946 review of the operation of complete division of the vagus nerves to the stomach for treatment of intractable duodenal ulcer. Numerous reports in 1947 attest to the profound influence of this procedure on the surgical management of ulcer, and further evaluation is now possible. The operation is based on the concept that ulcer is a phenomenon of hyperacidity and that, in patients with peptic ulcer, the excessive, continuous secretion of gastric juice is neurogenic in origin. This hyperacidity is abolished by complete division of the vagus nerves of the stomach. The clinical results of the operation, in the main, have been excellent, but there are some untoward effects. One is a profound decrease in motility of the stomach postoperatively. This is managed by decompression with stomach tube for five days following the vagus section. Where considerable retention of food has been noted before operation, it would seem wise to do a gastro-enterostomy in conjunction with vagus section. Other complications and undesirable sequelae which have been encountered are intercostal pain and neuralgia, pleural effusion, pulmonary atelectasis, and diarrhea. For the most part these have been mild and self-limited. Careful attention to postoperative care reduces the incidence and severity of most of them.

Where symptoms of ulcer persist after operation, it is postulated that not all the vagus nerves were divided. A second operation may be necessary or desirable under these circumstances. Vagus section seems effective in controlling recurrence of ulcer in patients following subtotal gastrectomy. The operation is not recommended for treatment of gastric ulcer because the surgeon is never sure that an ulcer of the stomach is not malignant. There is still no unanimity of opinion as to whether the operation is best performed through the abdominal approach or the trans-thoracic approach. The former route has the advantage of permitting a direct approach to the pathology, and to the stomach should gastroenterostomy be decided upon.

PERITONEAL LAVAGE FOR ANURIA

Acute renal failure and uremia occur in certain cases in which irreversible renal changes can not be demonstrated. Transfusions with incompatible blood, sulfonamide intoxication, renal injury from poisoning with heavy metals or other substances, toxemia of pregnancy, hemolytic reactions, shock and anuria for certain urologic and surgical procedures, all may produce acute renal insufficiency. The treatment of insufficiency by extrarenal excretion of waste products was found practicable in experimental animals as early as 1914. The method consisted in using the peritoneum as a dialyzing membrane. Within the year 1947, experimental and clinical reports appeared on peritoneal lavage as a means of treating acute renal insufficiency. Advances contributing to the feasibility of employing this technic successfully are: 1) the finding of a lavage fluid that has the proper electrolytic pattern and tonicity (modified Tyrode's solution); 2) the prophylactic value of antibiotics (penicillin and streptomycin in the dialysate against peritoneal infection); and 3) elimination of clotting difficulties by adding heparin to the irrigating solution.

Peritoneal dialysis is a more or less formidable procedure, and for this reason its use is restricted to cases of acute renal failure associated with reversible renal changes which have not responded to adequate trial of routine intravenous therapy and supportive measures designed to promote excretion of urine. If these routine measures fail and it appears that fatal termination may result, extrarenal excretion by peritoneal dialysis is indicated, and may, indeed, be life saving.

SOME PHYSIOLOGICAL EFFECTS OF WOUNDS

Reports in the recent literature describe new principles in the treatment of the severely wounded, based on study of more than 1,600 battle casualties in the Mediterranean Theater of Operations in the Second World War. Most severely wounded men do not suffer acute pain; three quarters of those arriving at the most forward hospital, even though they have had no morphine for five hours or more, were discovered not to be suffering enough to want anything done about it. On the other hand, those with shock due to blood loss nearly always complained of severe thirst. Patients with this condition were tided over, wherever possible, with plasma. It is noted, moreover, that, in Italy, the plasma was much less depleted than the red blood cells—so much so it was postulated there must be some unknown reservoir in otherwise healthy males of proteins in the body which is drawn upon in an emergency.

It was shown that the quantity of blood and plasma needed for resuscitation can be reduced to about half of that called for by older and slower methods. At the same time, delay in undertaking surgery because of shock can be cut about two-thirds by whole blood transfusions while the surgeon is at work. The importance of these studies is paramount. This economy of time and material will clearly be essential if military action ever takes place in inaccessible regions of the world, such as the polar regions, or if large numbers of the population should ever be subjected to atomic radiation, with consequent great blood loss from serous surfaces.

TOXOID IMMUNIZATION IN EXPERIMENTAL GAS GANGRENE

Cumulative experiences in both World Wars threw considerable doubt on the efficacy of gas gangrene antitoxin as a prophylactic for contaminated traumatic wounds. During the past five years, work in connection with the protection from gas gangrene wound infection has been intensified. The development of a toxoid against Clostridium welchii was one of the high priority projects of the Committee on Medical Research during the war. A toxoid has now been produced which is effective in producing immunity against a severe form of gas gangrene developed in experimental animals. The success of tetanus toxoid was excellently demonstrated in the Second World War. Fewer than a dozen cases of tetanus developed in tetanus toxoid immunized battle wounded American soldiers. It remains to be proved whether the same measure of success can be achieved with organisms producing gas gangrene. This first stage of the development of gas gangrene toxoid gives promise as to its worth in humans, but a large scale clinical experiment will have to be carried out to give clear-cut demonstration of its value. In total war, and with the atomic bomb, the civil population will need such protection as much as, or more than, the armed forces.

BACTERIOSTATICS IN BILIARY DISEASE

The sulfonamides, penicillin, and streptomycin are excreted in the bile of healthy men and animals. Theoretically, they should be of value as a substitute or adjunct to surgery in cholangitis and empyema of the gallbladder, and they might cure those chronic typhoid carriers in whom the gallbladder has proved to be the reservoir of the organism. Unfortunately, it has been shown that, where there is clinical or laboratory evidence of liver disease and dysfunction, excretion of chemotherapeutic drugs may be absent or reduced; whereas if the biliary tract is returning to normal function after surgical drainage these drugs are excreted in the bile. The bacteriostatic agents reach the gallbladder through the cystic duct. When the cystic duct is obstructed, the drugs are not found in the gallbladder bile, showing that they enter the gallbladder through the biliary ducts and not through the blood stream. The prospect of cure by chemotherapy in acute or chronic infections of the biliary tract is therefore not very bright since neither penicillin nor streptomycin nor the sulfonamides will be excreted in the bile in significant amount if there is intrahepatic or extrahepatic biliary disease. Furthermore, concentration in the gallbladder will depend on potency of the cystic duct, which can not be relied on in the type of patients among whom chronic typhoid carriers are usually found.

ANTISEPTICS

G-11 as an antiseptic for surgical scrubbing.—G-11 chemically is 2, 2′-dihydroxy-3,5,6,-3′,5,-6′ hexachlorodiphenyl methane. Several studies indicate that a 2 per cent solution of G-11 in neutral soap exerts a definite antiseptic action on the skin when used in a surgical scrub. The results are even more striking on the gloved hand, in that, while ordinary soap effects on bacteria are lost within a short time, the effects of G-11 are maintained during the usual period (one hour) of wearing gloves for surgical operations. There is, accordingly, a considerable enhancement by G-11 of the efficiency of the soap in reducing the possibility of wound contamination following puncture or tearing of a glove. Furthermore, scrubbing with 2 per cent G-11 in neutral soap produces the same reduction in bacterial counts of hands and arms in 90 seconds as is obtained in six to ten minutes of scrubbing with ordinary neutral soap when and provided G-11 soap is used routinely throughout the day. There are no reports thus far of skin irritation from G-11 in subjects who have been using it repeatedly. G-11 shows promise as a valuable addition to the surgeon's antiseptic armamentarium.

Furacin.—Penicillin and streptomycin partially, but not completely, meet the need for antibacterial compounds against surgical infections. Among the new compounds showing promise as a supplement to penicillin are the nitro-furans, of which furacin is a member. This compound exerts a bacteriostatic action on numerous gram-positive and gram-negative bacteria, is innocuous when applied locally, and does not appreciably retard the healing of experimental wounds. The compound is yellow in color, sparingly soluble in water, but more soluble in glycol compounds such as carbowax. Furacin is thermostable. It has been used successfully as a topical dressing in infected wounds, burns, dermatoses, and infected ulcers.

STREPTOMYCIN

The position of this antibiotic in the therapy of infections was clarified during the year. The bacteria more susceptible to streptomycin than to any other chemotherapeutic agent are the gram-negative bacilli, the non-hemolytic streptococci, and the tubercle bacilli. Streptomycin is indicated in the therapy of urinary tract infections, bacteriemia, including endocarditis, and bacterial meningitis caused by susceptible gram-negative bacilli. It is the most effective agent available for all types of tularemia, and, possibly, for lymphogranuloma inguinale. Dysentery caused by Shigella and Salmonella organisms when resistant to sulfonamides is usually resolved by streptomycin. This antibiotic has been found helpful in the treatment of otitis externa and chronic suppurative otitis media, ophthalmic infections due to gram-negative bacilli, chronic suppurative pulmonary infections, peritonitis of fecal origin, thrombopylephlebitis, and certain types of wound infections. The drug is complementary to penicillin in several of these conditions, and the two antibiotics may be given simultaneously to secure maximum effects. Streptomycin has a potent suppressive action on bacterial flora in the gastro-intestinal tract only when administered orally, and may be valuable for the preparation of patients for intestinal resection. The drug is proving an effective aid in the treatment of selected types of tuberculosis, both surgical and nonoperative.

Certain limitations make streptomycin less likely to be as important as penicillin in the treatment of infections. One limitation is the wide variety of sensitivity of bacteria to the agent in the test tube and the occurrence not uncommonly of naturally resistant organisms. A more serious drawback is the rapidity with which drug-fastness occurs in the test tube and in the body to this antibiotic when the infection producing organisms are not eliminated rapidly. Once drug-fastness has occurred, further streptomycin therapy is of no avail. A third limitation of this drug is that it seems hindered from entering an infected focus once actual necrosis has occurred. This limitation does not preclude its use as an adjuvant to indicated surgical measures. At the present time, streptomycin is expensive, a limitation of practical importance. The other factor which makes caution mandatory in the prescribing of streptomycin is the toxic effects it may produce, particularly when it is used in large doses for over long periods of time. These effects are mainly on the vestibular apparatus and are manifested by a disturbance of the gyroscopic function of the body. Fortunately, the symptoms of dizziness and staggering are usually not permanent. These objections notwithstanding on the basis of current experience, the use of highly purified streptomycin which is now available, is justified in all types of serious infections due to susceptible bacteria. Treatment certainly can be continued with safety for ten days. It may be that smaller doses, currently being evaluated for infections requiring prolonged treatment, may delay the onset of untoward reactions, lessen their severity, or eliminate them entirely.

XXIII. MEDICAL SCIENCES

PUBLIC HEALTH

By William R. Willard
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THE NATION'S HEALTH

Judged by mortality rates, the health of the United States in 1947 was excellent. For the first ten months there were slightly less than 3,000,000 deaths, and the provisional mortality rate was 10 per 1,000 population compared with 9.9 for the same period in 1946. The provisional infant mortality rate was 32.1 per 1,000 live births, a decrease of 11.6 per cent over the same period in 1946. (1)*

In the experience of the Metropolitan Life Insurance policyholders, the first nine months of 1947 set a record low death rate, 7.3 per 1,000 policyholders compared with 7.5 for comparable periods in 1945 and 1946. Among acute communicable disease deaths, new lows were reported for measles, scarlet fever, and whooping cough. Compared with 1946 deaths, however, poliomyelitis was lower, but diphtheria did not change. Despite an unfavorable spring, influenza and pneumonia reached new lows. These two diseases accounted for only 4 per cent of the total deaths compared with 10 per cent ten years ago. For tuberculosis also, a record low mortality rate was experienced. The favorable trend in maternal mortality continued. The appendicitis death rate dropped and was less than one-third of that of 10 years ago. Diabetes dropped slightly. However, the cardiovascular-renal diseases, now responsible for about half of all deaths from disease, increased slightly; and cancer, which accounts for about one-sixth of all deaths, reached a new high. The death rate from motor vehicle accidents was the lowest for any peacetime year since 1922, and home accidents reached the lowest point in history. (2)

The birth rate for the first 10 months of 1947 climbed to a new high of 26.2 per 1,000 population, 18.6 per cent higher than the corresponding period in 1946. An estimated 3,140,000 births were registered. (1)

COMMUNICABLE DISEASE PREVALENCE

The communicable disease picture was generally favorable according to reports through Nov. 15, 1947. Infantile paralysis outbreaks occurred in a few states; there were 10,071 cases reported compared with 23,894 for the comparable period of 1946. For the United States, smallpox gave promise of reaching a new low in 1947 (153 cases). However, an outbreak of 12 cases in April in New York City resulted in the vaccination of 6,350,000 persons in that city and thousands in the surrounding area. Diphtheria, with 10,511 cases, remained a problem, but there was a substantial reduction from 1945 and 1946. Whooping cough was prevalent. Substantial reductions occurred also for meningococcus meningitis, scarlet fever, typhoid, and paratyphoid fever, tularemia and endemic typhus fever. (3) (6)

LEGISLATION PROPOSED

President Truman, in a special message to Congress, emphasized the need for (1) adequate public health services, including an expanded program for maternal and child health; (2) additional research and medical education; (3) more hospitals and doctors in all areas where needed; (4) insurance against the costs of medical care; and (5) protection against loss of earning from illness.

A bill to create a National Science Foundation (S.526 Ammended) was passed by Congress but vetoed by the President who declared the bill was administratively unsound. "Full Government authority and responsibility would be placed in 24 part-time officers whom the President could not effectively hold responsible for proper administration." Furthermore, most of them would be employees of institutions eligible for Foundation grants. The President recommended the enactment of a basically sound bill on this subject.

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* Numbers in parentheses refer the reader to the published references listed at the end of this review.

The President's Scientific Research Board recommended that 1 per cent of the National Income, or about $2,000,000,000, annually should be expended on research, half by Government, half by industry, education, and privately financed organizations. Expenditures for health and medical research would be tripled in the next decade. President Truman endorsed this recommendation. (10)

S.140 ammended, a bill to create a Department of Health, Education, and Security with a Secretary in the President's Cabinet, was reported favorably by the Senate Committee on Expenditures and Executive Departments and recommended for immediate action. The proposed Department would have three undersecretaries, one each for a Bureau of Health, for Education, and for Public Welfare. The Bill commanded wide support from many organizations but was opposed by the American Medical Association which urged a cabinet department for Health alone with a physician as Secretary.

No action was taken on S.1320, the successor to S.1600, the Wagner-Murray-Dingle Bill of the last session on Compulsory health insurance. Its sponsors say that it incorporates the major constructive suggestions made in the course of hearing on S.1606.

Hearings were held on S.545, introduced by Senator Taft as an alternate proposal to S.1320. Under this bill, if enacted, grants would be provided to states to develop programs which would provide hospital, surgical, and medical services in institutions, homes, or physicians' offices for those unable to pay, estimated to cover about 20 per cent of the population. Senator Taft said the program would cost about $200,000,000 a year, but it is believed by many that this sum would not be adequate.

The hearings on these two bills have shown definite areas of agreement between those favoring the Taft Bill and those favoring the Wagner-Murray-Dingle Bill. Both favor some type of medical insurance; both acknowledge the need for Federal funds; both are opposed to top-heavy Federal administration; both favor better distribution of medical services and in some instances more facilities and personnel. Both agree that those who can not pay for medical care should receive first call on whatever facilities are provided. Opinion is widely split on whether tax supported medical care should be available to all or limited to the medically indigent. (14)

The Senate Committee on Labor and Public Welfare reported favorably on S.176, designed to promote a national research program on dental illness. Preliminary hearing on a bill (H.R. 1980) to provide grants-in-aids to states for the diagnosis and treatment of physical and mental defects of school children were held.

FEDERAL APPROPRIATIONS

To implement previously authorized programs, Congress appropriated for the United States Public Health Service: (1) $17,399,500 for Venereal Disease Control plus $516,500 for grants to states for the operation of Rapid Treatment Centers; (2) $8,000,000 for Tuberculosis Control, plus $1,000,000 for research in streptomycin; (3) $15,682,000 for grants-in-aid to states for general public health purposes (this includes $3,000,000 for Mental Health); (4) $4,250,000 for research and training of personnel in Mental Health; (5) $7,500,000 for Communicable Disease Control; (6) $14,500,000 for the National Cancer Institute; (7) $9,626,000 for the National Institute of Health (includes $1,000,000 for streptomycin and cancer studies and is included in the Tuberculosis Control and National Cancer Institute figures); (8) $2,650,000 for the construction of research facilities at the National Institute of Health; (9) $4,500,000 for nurses training under the Bolton Act (this program is scheduled for termination in 1948); (10) $275,000 for International Health Relations; and (11) $3,600,000 for the United States Public Health Service management expenses, including Vital Statistics.

The Mental Health Appropriation will provide $400,000 for research; $1,000,000 for training grants in psychiatry, clinical psychology, psychiatric social work and nursing; $3,000,000 for grants to states to develop community mental health services; $850,000 for the site and plans for a National Mental Health Institute to be located in the vicinity of Washington, D. C.; and $2,250,000 for the operation of the United States Public Health Service mental health centers. An ultimate goal is to aid the states in developing a mental out-patient clinic for each 100,000 population and to serve residents of sparsely settled areas with traveling clinics.

The cancer program will be expanded with the appropriation of $14,000,000, of which $10,000,000 will go for research; $1,500,000 will be devoted to improving the teaching of cancer. Medical schools are eligible for grants of $10,000—$25,000 each for this purpose. Physicians will be trained in the diagnosis and treatment of cancer, and research expanded at the National Cancer Institute; research grants will be given to Universities, health agencies, and other professional non-profit agencies, and grants-in-aid for states will be provided to assist them in developing cancer control programs.

The Atomic Energy Commission received $5,000,000 for cancer research, limited to the nuclear aspects of the problem.

In budget hearings, Congress took cognizance of the fact that 30 per cent of all deaths between ages 20-59 were caused by heart disease in contrast to 11 per cent from cancer, and that 9,000,000 to 10,000,000 cases of chronic illness in the United States are caused by heart disease. Therefore, $2,000,000 of the National Institute of Health Budget will be devoted to research in heart disease, a substantial increase in expenditures for this work.

The Children's Bureau received for grants-in-aid to states $11,000,000 for maternal and child health services, $7,500,000 for crippled children, and $3,500,000 for child welfare activities. In addition, $3,000.000 was appropriated for grants to states for the Emergency Maternity and Infant Care program. This war program is being liquidated. Servicemen's wives pregnant prior to June 30, 1947 are eligible, and their infants are eligible until they are one year old. The program should end in April, 1949.

Congress appropriated $65,000,000 to the Department of Agriculture for the School Lunch program. It was reported that 19 states (incomplete returns), 50,000 schools, and 8,000,000 out of 26,000,000 school children were participating in the benefits of the program. However, from the evidence presented, many Congressmen concluded that most states were not contributing their fair share to this program. Congress served notice that states could no longer expect Federal help of this magnitude for the school lunch program, and that in the future, they would have to assume greater financial responsibility.

STATE LEGISLATION

Numerous laws were passed by the states related to various aspects of medicine and public health. The following may be mentioned: (1) Cancer: appropriation of $250,000 for research to be expended by the University of California; (2) Tuberculosis: authorization for an institute of research under the direction of the Municipal Tuberculosis Sanitorium of Chicago and the University of Illinois, provision for additional sanitoria in Illinois, Florida, and Tennessee, free care for tuberculosis patients in Iowa and Tennessee, examination for tuberculosis of school employees annually in Maine and biennially in Arkansas; (3) Venereal Disease: authorization for free hospitalization of cases in Vermont; premarital examinations required in Alabama, Delaware, Kansas, and Montana, prenatal blood tests in Arkansas, Kansas, and New Hampshire; (4) Licensing, inspection and regulation of hospitals required in Arizona, Florida, Idaho, Iowa, Kansas, Montana, Nebraska, New Hampshire, North Carolina, North Dakota, Oregon, South Carolina, Tennessee, Utah, Virginia, and West Virginia; (5) Physical Examinations: sight and hearing examinations required of school children in California; examination of school children and school employees may be required by school districts in Wisconsin; food-handlers examinations required in Wisconsin; (6) Surveys of Diseases: surveys for cerebral palsy in New York and Washington, rheumatic heart disease in California, and mental health in Pennsylvania are called for; (7) Vaccination: Diphtheria toxid and whooping cough vaccine for children under 12 may be provided free in Maine by health officers; smallpox vaccine may be distributed free in New Jersey.

LOCAL HEALTH UNITS

The National Conference on Local Health Units called by the American Public Health Associations Subcommittee on Local Health Units, was held at Princeton University in September. The 100 delegates from 65 voluntary agencies represented no fewer than 50,000 local organizations. It was pointed out that only 66.2 per cent of the population in the United States was served in 1947 by full-time Health Units, an increase of only 4.4 per cent since 1942. Of 3,070 counties in the United States, 1,372 were served by full-time Units, only 152 more than in 1942. The representatives of the 65 agencies declared they were ready to urge their organizations, through national, state, and local branches, to work toward complete Health Unit coverage in the United States. (35)

HOSPITAL DEVELOPMENTS

Under the terms of the Hill-Burton Hospital Construction Bill enacted in 1946, money was appropriated by Congress for the use of states in making hospital surveys. As of Nov. 15, 1947, the plans of 18 states (Alabama, California, Colorado, Florida, Idaho, Illinois, Indiana, Kentucky, Mississippi, New Mexico, North Carolina, North Dakota, Oklahoma, Tennessee, Texas, Utah, Washington, West Virginia) had been approved by the Surgeon General of the United States Public Health Service. Plans for five other states (Arkansas, Georgia, Louisiana, South Dakota, and Wisconsin) were either in Washington or the District Offices of the United States Public Health Service awaiting approval.

Congress established a contractual obligation against the Government of the United States for $75,000,000 for hospital and health center construction for the fiscal year 1947-48. This is the first of what is anticipated to be five annual appropriations of this amount. This money is for allocation to states as state plans are approved in accordance with a formula which recognizes the financial need of the states. This money must, however, be matched by state or local money in a two-to-one ratio. The allotment for approved plans totals $32,531,025 and the potential allotment of the five plans awaiting approval is $8,084,825.

The intention of the Hospital Construction Act is to give priority to rural areas and those in need of additional facilities. That this objective may be reached is indicated by the first applications for hospital construction submitted by Nov. 15, 1947, 86 per cent of them originating in communities of less than 10,000 population. Applications for projects in the following states had been received by mid-November: Mississippi, Oklahoma, Illinois, Indiana, Texas, Alabama, Kentucky, and Washington.

The average size hospital is 48.6 beds as determined from 33 applications in which the number of beds was stated. The cost per bed, as calculated from six applications for non-profit hospitals, is estimated at $12,318.79. (16)

REPORT OF THE COMMISSION OF HOSPITAL CARE

The Commission of Hospital Care published a report August 1947. It presents an "inspiring view of an integrated hospital system in place of today's crazy quilt . . . . of a general hospital which would offer care for all kinds of illness, instead of just acute medical, surgical and obstetrical patients." Affiliation of all hospitals with medical schools is urged. The Commission estimates a need for 45,000 tuberculosis beds, 195,000 general hospital beds, and replacement of 25 per cent of present hospital beds which are outmoded. The public would be better served by 40 per cent fewer but larger hospitals. At present costs, the Commission estimates $1,800,000,000 would be necessary to construct and equip hospitals to meet current deficiencies, and that operation at 75 per cent occupancy would add $375,000,000 to the nation's annual hospital bill. Also recommended were fewer but larger nursing schools, more diagnostic clinics in hospitals, Federal aid for low income states to lift the level of hospital care, and coordinated hospital and public health services. (19)

Additional courses in hospital administration have been organized at Yale, Johns Hopkins, and Toronto. This has been made possible by grants from the W. K. Kellogg Foundation. It is significant that they have been placed in schools of public health.

BLUE CROSS AND MEDICAL SERVICE PLANS

During the second quarter of 1947, Blue Cross enrolled 1,428,605 new members, the third highest quarter in its history. As of July 1, the total enrollment exceeded 25,000,000. More than 20 per cent of the population of the United States and 16 per cent of Canada were covered.

The Blue Cross Commission released the first enrollment report of affiliated or non-affiliated non-profit medical care plans. It listed 64 approved medical and/or surgical plans, 49 of them affiliated with Blue Cross. As of July 1, the total enrollment was 6,353,845. In 32 states served by 59 non-profit plans, 6.3 per cent of the population was enrolled; in six states more than 15 per cent; Delaware with 40.9 per cent and New Hampshire with 27.8 per cent were the leaders. (17)

Relationships between Blue Cross organizations and hospitals have been strained for some time. Blue Cross plans have grown tremendously in enrollment, benefits have been increased, and in 1946, the incidence of admissions and average period of hospitalization increased. During five years, rates to subscribers have been raised 15 per cent, but reserves have declined and a steadily rising per cent of earned income has been used. Blue Cross payments have not kept up with the cost of hospitalization. A Joint Committee of nine, representing the Board of Trustees, the Council of Administrative Practice, and the Blue Cross Commission produced the first of two reports aimed at re-adjusting relationships between hospitals and Blue Cross. The Committee adopted three principles: (1) plans should provide complete hospital care on a service benefit basis; (2) subscription rates should be adequate to provide plans with sufficient income to pay hospitals the amounts necessary to finance comprehensive hospital care; (3) subscription rates should be increased rather than benefits reduced when current plan incomes are not adequate. (11)

The United States Public Health Service issued a survey report of Blue Cross and Medical Plans prepared by Louis Reed, which concluded that the plans are beneficial to subscribers, hospitals, and the medical profession. The plans by themselves do not have the potentialities of providing comprehensive health service to the whole population, but with a high degree of governmental cooperation and assistance they might succeed. (26)

PERSONNEL PROBLEMS

The shortage of qualified professional personnel remained a serious problem. The United States Public Health Service, in studying 12 states, reported 1,847 unfilled positions of all types, an increase of 590 since July 1945. Other studies have confirmed the shortage of personnel. (4)

Low salaries was considered one reason for this shortage. Forty-eight physician candidates were asking $5,860 a year as the average minimum acceptable salary, but the average beginning salary was only $4,900. (7)

In an "Urgent Message to the Employees of Public Health Nurses," the N.O.P.H.N. on May 29, 1947 recommended that no nurse in public health work should receive less than $2,400, and that staff nurses who have completed approved training should receive $2,520 and up. The Executive Board of the American Public Health Association recommended that no physician in public health work with an internship and two or more years successful full-time experience should receive less than $6,000 and that those who have completed graduate training in addition should receive $8,500 or more, depending upon their experience and responsibility. Annual increments ranging up to $12,000 were recommended. (8)

The American Hospital Association and the Advertising Council in cooperation with other agencies conducted a national drive to attract 45,000 qualified girls to enroll in schools of nursing. (16) The National League of Nursing Education reported that by the end of 1947, 38,210 students will have been admitted to state accredited schools of nursing, an increase of 24 per cent over 1946.

PROFESSIONAL EDUCATION

Tulane University was accredited by the American Public Health Association to give the degree of Master of Public Health, thus increasing the number of accredited schools for this degree to 11. (27)

As reported in 1946, all schools are crowded to capacity and have a substantial number of foreign students. Figures for 1946, released by the Committee on Professional Education of the American Public Health Association, show that 1,468 students received degrees, 353 in public health, 63 in public health engineering, and 1,052 in public health nursing. The enrollment in Schools of Public Health increased by 90 per cent over the low of 1942-43, but while degrees granted in public health and public health engineering doubled, those in public health nursing increased by only one-third. (9)

Presidents of 19 American Universities joined March 15 in warning of the uncertain future of medical education. Dr. Alan Valentine, president of the University of Rochester, said: "Expenses of medical schools run as high as $4,500 or more per student per year. Few, if any, of the seventy recognized medical schools in the United States can be confident with present resources of maintaining in the future their programs at the essential high level." The presidents called upon the citizens of this country for "prompt and generous aid." (12)

New University centers for teaching occupational medicine and Hygiene were established at Yale, New York University, Jefferson, and the universities of Washington (Seattle) and Cincinnati.

HEALTH SURVEYS AND REPORTS

A report on the medical survey of the Bituminous Coal Industry, conducted by Rear Admiral Joel T. Boone, MC, U.S.N., was issued in accordance with the Krug-Lewis agreement. (20)

Important surveys in Alaska and among the Navajo and Hopi American Indians revealed serious health problems. (21) (22)

The Food and Nutrition Board of the National Research Council took cognizance of the fact that several species of animals (notably dogs) are susceptible to a toxic factor in nitrogen trichloride treated (Agenized) flour. Agene is used commercially for bleaching flour. The possibility of injury to human beings exists, though such injury has not been demonstrated. The Board recommended that alternative processes and suitable commercial equipment and controls should be made available to the mills as soon as possible, meantime reducing the use of nitrogen trichloride, but drastic or immediate restrictions were not indicated. (23)

A conference of six interested official and non-official agencies in April recommended that the United States Public Health Service, the United States Department of Agriculture and the United States Fish and Wildlife Service coordinate a campaign on a national scale to eradicate rabies, which has become a serious problem. (5)

THE CHRONICALLY ILL

A report entitled "Planning for the Care of the Chronically Ill" was issued jointly by the American Hospital Association, American Medical Association, American Public Health Association, and American Public Welfare Association. It noted that 25,000,000 persons in the United States have a chronic disease, that 7,000,000 have appreciable disability, and 1,500,000 are invalids; that chronic disease causes nearly 1,000,000 deaths and the loss of 1,000,000,000 man-days annually from productive activity. Recommendations were formulated covering research, prevention, facilities, home care, integration, and coordination of services. This statement focuses attention on planning to meet this large problem. (25)

OCCUPATIONAL DISEASES

The production and use of radioisotopes present a potential health hazard of tremendous proportions, particularly if nuclear energy becomes a source of power in general use and the present facilities for the disposal of radioactive wastes become inadequate. As part of this large potential problem, as yet unsolved, research institutions have been forced to consider the protection of their workers and others who may be exposed. Control measures include replacement and periodic medical and laboratory examinations, personnel monitoring to detect exposure of individuals to excessive radiation, bio-assy of excreta of persons who may have inhaled or ingested radioisotopes, area and research procedure monitoring; engineering to control dusts, fumes, and gases; and proper methods of disposal of radioisotopes. (32)

Although there are comparatively few reports in the literature, a new occupational disease is believed prevalent among beryllium workers. (33)

ENVIRONMENTAL SANITATION

The year 1947 witnessed the practical demise of Federal public housing programs, but Senator Taft plans to introduce in 1948 another bill for Public Housing. The Committee on the Hygiene of Housing of the American Public Health Association issued its manual of instructions on appraisal techniques for housing.

Hearings were begun on S.418, a bill to authorize $100,000 for grants-in-aid and loans to states for water pollution control and $1,500,000 for state surveys on stream pollution. (14) There is increased interest in septic tank design as evidenced by extensive research projects at the United States Public Health Service laboratory at Cincinnati and the University of Michigan. The American Public Health Association issued the 9th edition of *Standard Methods of Water Analysis,* containing many improvements in methods of water anaylses. Numerous articles on the newer insecticides and rodenticides have appeared in the literature. Much of the work was done during war years, but publication was withheld for security reasons. The emphasis in the field of environmental sanitation is gradually shifting from the classical problems of water and sewage to the broader social problems exemplified by housing.

INTERNATIONAL HEALTH

The constitution of the World Health Organization was ratified by 17 nations as of Sept. 29, 1947. Twenty-six countries must ratify to bring this organization into formal existence. The United States Senate unanimously passed a resolution favoring participation, and it is believed that a similar resolution will pass the next session of the House of Representatives.

Meantime, the World Health Organization is working actively through an Interim Commission which now has merged the technical functions of UNRRA, the Health Organization of the League of Nations, and the Office International d'Hygiene Publique. The 12th Pan-American Sanitary Organization voted to act as the Regional Office of the World Health Organization in the Western Hemisphere in accordance with the constitution of the WHO and the terms of an appended agreement. This change will take place when the agreement has been approved by the WHO and 14 of the American Republics.

Some of the activities of the year are as follows: (1) 192 students were selected from various countries for postgraduate training in public health, medicine, sanitation, and nursing; (2) medical literature was provided for Yugoslavia and will be provided for other countries; (3) missions of technical experts have been maintained in China, Greece, Italy, and other countries to assist the public health authorities and to train native personnel; (4) a committee of six was sent to the Middle East to study health problems incident to the pilgrimages to Mecca, and to make recommendations for the consideration of the WHO; (5) seven tons of medical supplies and vaccines were provided for Egypt within three days after their request by the Egyptian Health Ministry to fight the cholera epidemic which by Oct. 19th had resulted in 4,785 confirmed cases and 2,150 deaths; (6) ten technical committees have been appointed, including one to prepare a revision of International List of Diseases and Causes of Death, to study malaria, venereal diseases, and standardization of biological products; (7) plans for the first World Health Assembly to be held in the Western Hemisphere in 1948 were approved; (8) current epidemiological information was provided (toward this end the Singapore base, controlling 12 radio stations in the Far East, was taken over to relay epidemiological and technical information to public health and maritime personnel in that part of the world); (9) a limited program of technical publications was started; (10) negotiations with the International Labor Organization (ILO), United Nations Educational, Scientific and Cultural Organization (UNESCO), International Food and Agriculture Organization (IFAO), International Children's Emergency Fund and International Civil Aeronautical Organization (ICAO) were started to ensure a coordinated attack on mutual problems and to avoid overlapping (the cooperative attitude exhibited by all parties in such negotiations augers well for the success of the work).

The work of the International Children's Emergency Fund, designed to aid the suffering children of war-torn areas is significant. Priority aid will be the daily provision of one pint of milk to 5,000,000 children in Europe and China. As of Aug. 5, a budget of $20,000,000 was available. The United States committed $15,000,000, with a promise of $25,000,000 more, with a ratio of $57 for every $43 subscribed by other governments. Voluntary contributions will supplement this.

The United Nations Narcotic Commission has reviewed the problems of illicit drug traffic since the war, and made appropriate recommendations to the various governments. Especially important is the development of new synthetic narcotics which can be synthesized easily from readily available raw materials. One of these, demerol, is habit forming. Another, amidone, probably is also. Neither is covered by international conventions at the present time. Appropriate steps to draft a protocol covering the new synthetic narcotics and to circulate it among the various governments have been initiated through the

Economic and Social Council of the United Nations upon recommendation of the Narcotic Commission. (28) (29) (30) (31)

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DENTISTRY

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POST-WAR INCREASE IN ENROLLMENT IN DENTAL SCHOOLS

During the past 20 years, many of the dental schools of this country have not been filled to capacity in spite of the opportunities in the profession and the need for more dental service on the part of the public. However, in 1947, there were many more applicants than the schools could accommodate. The enrollment in the first-year classes of all the schools in this country for 1947 is 3,022. This higher appreciation of dentistry as a profession affords the schools an opportunity to select their student body with greater care and will undoubtedly be reflected in the standards of dental education and the caliber of those entering the profession.

In the past, the better students gravitated and were directed toward the more inclusive field of medicine. There was little allure for the prospective student in the unpublicized, undramatic, though very essential field of dentistry. Now for the first time all of the dental schools find themselves deluged with applicants for admission. On the basis of conversations with large numbers of applicants, it is evident that a very important factor in this sudden influx is the fact that veterans may now engage in professional study with substantial financial aid from the Government. The course of training is long and expensive, and this fact alone has prevented many well qualified individuals from applying in the past. This is not the entire answer, however, as to why so many are desirous of entering dentistry, for the veteran has free choice of the entire field of education.

Before the war it is estimated that only about 25 per cent of the population availed itself of any dental service. During the early days of the war, dental defects accounted for the highest number of rejections. It became necessary to change the policy and provide dental service after the recruits were inducted. As a result, many young men received dental service for the first time in their lives. The value of such service and the lack of dentists to provide it has been well publicized, and, as a result, many who previously were oblivious to dentistry, but who had an interest in the biological sciences and a desire to be of service to their fellows, decided upon dentistry as the field offering the greatest opportunities. In many instances, an important factor in this decision was the opportunity afforded enlisted men assigned to the medical corps to assist officers of the dental corps and to learn first hand something of the nature of the service rendered and its importance in the whole field of public health.

APTITUDE TESTING PROGRAM

The increase in the number of applications to dental schools has stimulated the move toward providing uniform and adequate aptitude tests for those desiring to enter this field. Some of the schools have developed their own testing program. Some use the results of tests administered by the Graduate Record Office, designed primarily for those seeking admission to medical schools. In 1947, dentistry instituted its own nationwide testing program. This program was planned by the Council on Dental Education with Shailer Peterson, Ph. D., serving as director of educational measurements, and is sponsored by the American Dental Association. The tests aimed to measure quantitative intelligence, linguistic intelligence, physical science vocabulary, biological science vocabulary, object visualization, reading ability in natural sciences, word dexterity, correctness and effectiveness of expression, carving dexterity. It is hoped that, as the program continues, it will be possible to determine in which of these areas competence is important. Some of the tests have been used widely in colleges and other professional schools, and thus the results provide a basis for comparison between entering dental students and those in other fields.

The scores of the year's entering class shows the group as a group to be very superior, in all but English composition, to the groups in other fields with which it was compared. In this case, the group score was slightly below the national average established by students who more recently had had work in this subject.

DECLINE IN NEGRO DENTISTS

The Director of Public Health and Preventive Medicine at Howard University has been engaged in a study of the distribution of Negro professional personnel in the United States. The report on the distribution of Negro dentists was made during the year by Dr. Paul B. Cornely. The report shows that, during the decade 1930-1940, the number of Negro dentists decreased from 1,773 to 1,471, or 17 per cent. During this same period, the Negro population increased by approximately 8 per cent. Thus, in 1940, there were 1,471 Negro dentists serving a Negro population of almost 13,000,000 or a ratio of 8,745 persons per dentist. The national average was one dentist to 1,800 persons. There was a decline in the total number of dentists during this period of .6 per cent. The 17 per cent decline in Negro dentists is also considerably in excess of the decline in the number of Negro physicians. The greatest decline occurred in the west central area of the United States. From 1940 to 1945, there was an overall increase of Negro dentists of 4.2 per cent over 1940, but this is still short of the 1930 figure.

This decrease in the number of Negro dentists parallels the decrease in the number of Negro students in dental schools. The slight increase since 1940 is attributed to improvement of the economic conditions of Negroes during the later period making it possible for more Negro students to apply to dental schools.

Dr. Cornely makes four suggestions aimed to relieve the situation: (1) develop the two schools for Negroes, providing fellowships, scholarships, and loan funds; (2) the other dental schools should assume a more liberal attitude and admit a larger number of Negroes to their classes; (3) a program of vocational guidance is needed in the Negro high schools and colleges of the south to stimulate qualified Negroes to enter the field; (4) the institution of a program whereby Negro youths of promise will be sent to dental school at community or foundation expense with the understanding that they return to their community on completion of their training.

SPECIALTIES IN DENTISTRY

Prior to the war, the Council on Dental Education had begun a study of the question of specialties in dentistry, but because of the war suspended action; it has resumed it in the past two years. In the meantime six states (Illinois, Kansas, Michigan, Oklahoma, South Carolina, and Tennessee) have enacted laws limiting the practice of a dentist as a specialist to those who meet the qualifications of the respective state boards of examiners. In the remaining states, it still is possible for any graduate dentist to set himself up as a specialist without having had training beyond that required of the general practitioner. However, the situation is not improved, and the public would be as much in the dark as ever when trying to avail itself of the services of a specialist, if the requirements for certification were to be left to the legislatures in each of the 48 states. The definition and preparation of a specialist must not mean one thing in one state and something else in the next.

In the medical profession, the Council on Medical Education took the view in 1933 that it was essential that uniform standards exist throughout the country and that if the states were to assume the function of designating qualified specialists only confusion would result. The Council on Dental Education, guided by the experience of the Council on Medical Education, which has approved 15 specialty boards, took the same position, declaring that any method of certification must be national in scope and must be under the control of each specialty board, with responsibility for determining the qualifications of one who claims to be a specialist resting upon the specialists themselves.

The Council on Dental Education has recognized the need for specialists in five branches of dentistry: oral surgery, orthodontics, pedodontics, prosthodontia, and periodontia. To qualify for the examination before the boards in each of the above fields, one now must be a graduate of an accredited dental school, a citizen of the United States, a member of the American Dental Association or the National Dental Association, be licensed to practice dentistry, take two years of advanced training, and have engaged for three years in practice devoted primarily to the specialty field.

RESEARCH ON DENTAL PROBLEMS

During 1947, dentistry made notable progress toward the solution of some of its basic problems. Research into the causes and prevention of tooth decay, and into the cause and prevention and treatment of diseases of the soft tissues of the mouth has resulted in considerable progress. Much of the research has been made possible by grants to universities from the U. S. Public Health Service, such grants being authorized by Congress in Public Law 410. Unfortunately, very little private money has found its way into studies on dental problems. The result has been that a large amount of potentially very important research has not been done. Many of the dental schools have staff members and other personnel who have the talent, training, and interest necessary for scientific investigation, but have been prevented by the deflection of practically all private funds to medical schools. It is encouraging that public funds are being allotted to research on dental as well as on medical problems.

It is not possible to predict which studies may ultimately prove to be most valuable, and it is equally impossible to present here a review of all those which show promise. One study which brings to light some important factors was conducted by J. F. Volker and D. M. Pinkerton. It is generally recognized that tooth decay (dental caries) is related to the retention of refined carbohydrates about the teeth and their subsequent breakdown into acids by the action of saliva. Accordingly, those forms of carbohydrates which were retained longest would have the most harmful effect on the teeth and should be avoided. Glucose was selected for the experiment because it can be detected by reliable quantitative methods and not because it is of any greater importance in the production of caries than other sugars.

Six young adults were used in the study. After testing the content of the saliva of each subject, the glucose was administered in 500 mg. quantities in the following forms: (1) wafer to be dissolved by sucking; (2) a cube to be chewed; (3) 4 cc. of a water solution to be churned in the mouth for one minute prior to swallowing; (4) with a gum base to be chewed for 30 minutes. An examination of the saliva, following the administration of the glucose, indicates that the mouth was cleared of glucose most rapidly when it was used as a rinse and slowest where sucked in the form of a wafer. There may be a definite relationship between the form in which we consume our sugars and the tendency to decay of the teeth. The findings bear out the often observed fact that caries is frequently rampant in people who habitually hold a candy wafer in their cheek. In a further study, the same investigators found that the carbohydrates present in various foods were converted to acid by a saliva mixture at a rate similar to those observed for refined sugars. It has been a common belief that the consumption of refined carbohydrates should be discouraged but that natural carbohydrates can be used with impunity. This investigation indicates that the question is one of quantity and concentration rather than kind.

PENICILLIN IN DENTISTRY

Penicillin is frequently referred to as the miracle drug, and it has proven to be a remarkably effective therapeutic agent against a variety of serious infections. On the other hand, it is ineffective in combating many others. Its great value does not lie so much in its action on a great variety of bacteria as it does upon the fact that there is so little danger in its use. There is an almost complete lack of serious toxic complications.

Orally administered, penicillin is highly effective in the treatment of Vincent's infection during the acute stage. Relief from pain is afforded in a matter of hours, and the inflammation subsides in a few days to the point where scaling of the teeth may be carried on without pain. Where the administration of penicillin has not been followed by scaling, the beneficial results have been transitory. The routine use of penicillin lozenges is severely condemned. The result may be an incomplete cure or the development of a tolerance for penicillin which renders future treatment ineffective.

In oral surgery, penicillin is efficient in the treatment of acute lesions, especially spirochetal infections, and seems to be more effective if given intramuscularly than by mouth.

From a study conducted by F. J. McClure and W. I. Hewitt, it seems that penicillin may be effective in the inhibition of dental caries. These investigators found that it was effective in inhibiting the development of a caries-like lesion which was induced in the teeth of rats. The L. Acidophilus organism has long been associated with the development of dental caries. It was found that penicillin, administered orally, reduced the concentration of this organism and greatly inhibited the development of the rat caries. The study suggests that human dental caries may respond to penicillin therapy.

PERIODONTAL DISTURBANCES

Dr. Isaac Schour and Dr. Maury Massler made an examination of the gingival tissue around the teeth of 3,905 Italians following the war. These examinations were part of a general medical survey conducted in various Italian cities by the Italian Medical Nutrition Mission. The dental examinations were made in the four communities of Naples, Varese, Cagliari, and Catanzaro. Those examined in the first two cities were from a particularly low economic level, were unclean, and suffered from various ailments. Those in the other two communities were slightly better off. The ages of those examined ranged from six to 60 years, and all suffered more or less from malnutrition.

Inflammation of the gingival tissue was found to be very prevalent, ranging from 40 per cent in the 6-10 year group to 98 per cent in the 51-60 year group. The severity of the disease increased with age, the acute forms being more prevalent in the young, and the chronic types in the old. The prevalence and degree of the disease appeared to be greater in the more poorly nourished groups, and considerably greater than has been observed in comparable age groups in this country.

While periodontal disease appears to be somewhat less prevalent and less severe in this country than in areas suffering from malnutrition, a very large percentage of the cases here might be prevented by early treatment of systemic diseases predisposing to periodontal disease (pyorrhea). Dr. B. O. A. Thomas, as a result of a study, advocates the institution of a program of preventive periodontia in conjunction with one of preventive orthodontics.

In discussing various conditions in childhood that lead to periodontal disease in the adult, Dr. Thomas refers to diabetes. In untreated cases of this disease, there is a lowered resistance to infection, and a gingivitis develops which progresses until the deeper tissues are involved and the disease is out of control. The degree to which diabetes may affect the periodontal tissue depends upon the damage suffered prior to the institution of treatment for the diabetes.

The thyroid gland, by regulating the metabolic rate, is extremely important in the maintenance of normal growth. Abnormalities of alignment of the teeth due to hypothyroidism are often responsible for periodontal as well as orthodontic problems in later years. Also, hypopituitarism is often responsible for delayed and irregular eruption and malalignment of teeth predisposing to food impaction with gingivitis resulting from trauma to the soft tissues.

The soft tissues of the mouth are often the first to exhibit signs of nutritional deficiencies. Scurvy is no longer common in the United States, but vitamin C deficiencies that are less severe result in a definite periodontal disease with loosening and drifting of the teeth and the formation of pockets. There is no apparent direct relation between the periodontal condition and epilepsy, but the seizures which are characteristic of this disease may be controlled by the use of sedative drugs which in many cases causes serious hyperplasia of the gingivae. Also, there are many local factors which, if neglected in the young, are responsible for the development of pyorrhea alveolaris in later life. Some of these are Vincent's infection, caries, trauma, faulty dentistry, poor mouth hygiene, malocclusion.

REGISTERED DENTAL HYGIENIST

As the importance of a clean mouth became more and more evident in the correction and prevention of dental disease, the dental profession endeavoured to find a way in which the teeth might be cleaned and patients educated in the care of the mouth without taking the dentist from work which demanded his greater skill and more extensive training. Years ago, Dr. Fones of Bridgeport, Conn., advocated the assistance of women, especially trained under dentists, as a solution of the problem. The idea developed in spite of the opposition of some in the profession who could not get away from the notion that a dentist must render every dental service with his own two hands. Today, the dental hygienist is recognized and registered in 38 states, the District of Columbia, and Hawaii.

In order to practice, she must graduate from an accepted school, pass state board examinations, and hold a license to practice in the state in which she is employed. In all types of positions, she must work under the supervision of a licensed dentist, and her work on patients is limited to the removal of calcareous deposits, accretions, and stains from the exposed surfaces of the teeth. At first, the dental hygienist was employed in dental offices, serving the dentist much as a nurse serves the physician, in addition to her special service to the patient. Later, it was found that her services could be more far-reaching when she was employed in the public schools.

Originally, the course of training was one academic year, but gradually it has been expanded to include more courses aimed to equip the graduate to take her place along with other public school teachers. Today there are 14 schools, ten of which provide a two-year course of training. In 1947, the Council on Dental Education set up requirements for the accrediting of these schools and made plans to inspect them in the near future. In general, the requirements specify that, to be accredited, a school for dental hygienists should be affiliated with a dental school, the course should be not less than two academic years in length, will be expected to maintain a standard of academic discipline that will permit full credit in all courses toward a bachelor of science degree. At the present time, there are eight universities that grant the bachelor of science degree in dental hygiene or health education following four years of work, two of which are in the schools for dental hygienists.

VITAL STATISTICS

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BIRTH RATES IN 1946 AND 1947

In 1946, the first year after the war, the crude birth rate rose to a 25-year high of 23.3 per 1,000 population, including the armed forces overseas. In 1947, the rate increased still further and reached an estimated rate of 25.9 which is higher than any annual rate recorded since the birth-registration area was established in 1915. These rates are considerably higher than the wartime high of 21.5 set in 1943 and the rates for the last two war years, 1944 (20.2) and 1945 (19.6).

The importance of the increase in the birth rate during the post-war period for planning school facilities, housing, etc. becomes more apparent when the numbers of birth recorded for recent years are examined. Prior to 1946, the greatest number of babies born in this country occurred in 1943. During that year, 2,934,860 live births were registered. In 1944, the figure was 2,794,800, and in 1945 it fell to 2,735,456 which, nevertheless, was more than 200,000 above any year prior to 1942. An estimated 3,260,000 births were registered in 1946, but even this high figure was considerably outdistanced by the estimated number of 3,730,000 for 1947. When non-registered births are added to this last number, it seems likely that births will total 3,900,000 in 1947.

July 1946 marked the beginning of an extraordinarily rapid rise in the birth rate which continued to the end of the year and resulted in the high rate indicated above. The provisional rate for each month, starting with that of 27.9 for September, was higher than any previously reported in the history of the birth-registration area, and in December it reached 29.5. These provisional monthly rates are based on the number of birth certificates received by 46 states and the District of Columbia during a reporting period and are expected to differ slightly from the final rates. They contain an adjustment which places them on an annual basis, thereby making it possible to compare the rate for one month with that of another and with the rate for the entire year.

The birth rate in the early months of 1947 showed a tendency to decline from the monthly high set at the end of 1946. This downward movement was of short duration, and much of the variation in the following months was due to seasonality in the birth rate. The provisional birth rates for the last few months of 1947 were: 26, July; 25.8, August; 26.8, September; 26, October; and 24.4, November. December data are not available at this writing.

During 1946, every region of the country experienced substantial increases in the crude birth rate over 1945, with the largest increases occurring in the Middle Atlantic and East North Central regions. Present indications are that every state also experienced a rise in the birth rate from 1946 to 1947.

Contributing factors to the rapid increase in the birth rate at the end of 1946 and the high rate in 1947 are undoubtedly the heavy demobilization of the armed forces which began shortly after V-J Day and extended through the first half of 1946, the record-breaking number of marriages in 1946, and the high level of employment.

PERSON IN ATTENDANCE AT BIRTH

The proportion of births attended by physicians in hospitals has more than doubled since 1935. In that year, only 36.9 per cent were so attended as compared with 78.8 per cent in 1945, the latest year for which final figures are available. It is estimated that in 1946 and in 1947 the proportions were 81.5 per cent and 83.5 per cent, respectively. The proportion of births attended by physicians outside of hospitals declined from 50.6 per cent in 1935 to 14.7 per cent in 1945.

There has been less change in the proportion of births attended by midwives. Of all births in 1945, 6.1 per cent were attended by midwives, a reduction of nearly one-half from the 1935 proportion (10.7 per cent). The net result of these changes is that 93.5 per cent of all births in 1945 were physician-attended as compared with 87.5 in 1935.

National totals obscure the large differences between states which exist in the proportion of births occurring in hospitals. In 1945, there were 10 states in which more than 95 per cent of all births took place in hospitals, but there were six states in which less than 50 per cent of the births occurred in hospitals.

In both the white and nonwhite groups, there has been a continued upward trend in the proportion of births occurring in hospitals. Over the 10-year period 1936-1945, the proportion of such births in each of these racial groups approximately doubled. In 1945, however, the proportion of births of white infants in hospitals (84.3 per cent) was more than twice the proportion (40.2 per cent) observed among births of nonwhite infants. When births attended by physicians outside of hospitals are included, the disparity between the white and nonwhite groups is reduced, although it is still appreciable. In 1945, 98.0 per cent of all white births were attended by physicians (in or out of hospitals), while 61.9 per cent of the

TABLE A

CRUDE BIRTH, MARRIAGE, DIVORCE, AND DEATH RATES, AND INFANT AND MATERNAL MORTALITY RATES: UNITED STATES, 1933–45

(Births and deaths exclusive of stillbirths)

Year	Rate per 1,000 Estimated Midyear Population[1]				Rate per 1,000 Live Births	
	Birth	Marriage	Divorce[2]	Death	Maternal	Infant[3]
1947[4]	25.9	—	—	10.1	—	—
1946[5]	23.3	16.3	4.3	10.0	1.6	33.8
1945	19.6	12.1	3.5	10.6	2.1	38.3
1944	20.2	11.0	2.9	10.6	2.3	39.8
1943	21.5	11.8	2.6	10.9	2.5	40.4
1942	20.9	13.2	2.4	10.4	2.6	40.4
1941	18.9	12.7	2.2	10.5	3.2	45.3
1940	17.9	12.1	2.0	10.7	3.8	47.0
1939	17.3	10.7	1.9	10.6	4.0	48.0
1938	17.6	10.3	1.9	10.6	4.4	51.0
1937	17.1	11.3	1.9	11.3	4.9	54.4
1936	16.7	10.7	1.8	11.6	5.7	57.1
1935	16.9	10.4	1.7	10.9	5.8	55.7
1934	17.2	10.3	1.6	11.1	5.9	60.1
1933	16.6	8.7	1.3	10.7	6.2	58.1

[1] Birth and divorce rates based on total population, including armed forces overseas. Marriage and death rates exclude data for armed forces overseas.

[2] Includes reported annulments.

[3] Deaths under 1 year of age.

[4] Estimated.

[5] Birth rate and maternal and infant mortality rates are provisional.

— Data not available.

nonwhite births were attended by physicians. Births attended by midwives form a large proportion of all nonwhite births, 37.3 per cent, but are of negligible importance in the white group (less than 2 per cent).

The increase in the proportion of births occurring in hospitals and the decrease of nonphysician-attended births undoubtedly have been contributing factors to the decline in recent years of the maternal mortality and infant mortality rates (see below). The type of attendant and the occurrence of birth in a hospital are two of the more important factors in the preservation of life, since medical supervision at childbirth provides for surgical intervention and assures particular attention to the degree of asepsis and to the surroundings of the new-born.

DEATH RATES, 1946–1947

The crude death rate for the United States declined to a record low in 1946 of 10 per 1,000 estimated population. The previously lowest rate was 10.4, recorded in 1942. The estimated national death rate for 1947, based on data for the first 10 months of the year, was 10.1.

TABLE B

NUMBER OF DEATHS AND DEATH RATES BY AGE: DEATH-REGISTRATION STATES,[1] FOR SPECIFIED YEARS

(Exclusive of stillbirths. Rates per 1,000 estimated population in a specified age group)

Year	All Ages[2]	Under 1 Year	1–4 Years	5–14 Years	15–24 Years	25–44 Years	45–64 Years	65 Years and Over
	Number							
1946[3].....	1,395,617	111,063	19,679	17,948	37,729	134,718	397,391	675,928
1945[3].....	1,401,719	104,684	21,345	19,481	38,770	139,930	404,144	672,012
1944[3].....	1,411,338	111,127	23,317	20,311	42,876	142,255	401,590	668,453
1943[3].....	1,459,544	118,484	23,903	20,968	46,816	149,967	411,549	686,248
1942[3].....	1,385,187	113,492	21,854	19,805	45,153	151,366	396,501	635,286
1941[3].....	1,397,642	113,949	24,302	21,869	48,110	156,452	396,051	635,681
1940[3].....	1,417,269	110,984	24,678	23,253	48,999	160,633	399,774	647,246
1935.....	1,392,752	120,138	36,807	36,690	63,296	192,968	384,207	557,346
1930.....	1,327,240	143,201	49,096	40,108	71,251	196,976	348,661	476,104
1925.....	1,191,809	158,080	54,937	40,074	67,419	180,368	286,711	402,561
1920.....	1,118,070	170,911	72,099	45,581	72,662	193,485	239,024	322,702
1910.....	696,856	135,020	54,030	25,592	41,206	113,105	140,796	186,414
1900.....	343,217	71,117	32,412	14,665	21,759	56,591	62,391	83,094
	Rate							
1946[3].....	10.0	45.3	1.8	0.8	1.7	3.2	13.7	65.2
1945[3].....	10.6	41.7	2.0	0.9	1.9	3.7	14.2	66.4
1944[3].....	10.6	43.3	2.3	0.9	2.0	3.7	14.4	67.8
1943[3].....	10.9	43.0	2.6	1.0	2.0	3.8	14.9	71.0
1942[3].....	10.4	48.0	2.4	0.9	1.9	3.8	14.6	67.2
1941[3].....	10.5	52.3	2.8	1.0	2.0	3.9	14.8	68.9
1940[3].....	10.7	54.8	2.9	1.0	2.0	4.0	15.2	71.7
1935.....	10.9	60.9	4.4	1.5	2.7	5.1	16.2	71.9
1930.....	11.3	69.0	5.6	1.7	3.3	5.7	16.8	73.7
1925.....	11.7	75.4	6.4	2.0	3.8	5.9	16.6	76.5
1920.....	13.0	92.3	9.9	2.6	4.9	7.4	16.6	77.5
1910.....	14.7	131.8	14.0	2.9	4.5	7.6	18.4	80.6
1900.....	17.2	162.4	19.8	3.9	5.9	9.1	19.8	82.3

[1] Include entire continental United States, beginning with 1933.
[2] Include "unknown" and ages not stated.
[3] Excludes armed forces overseas.

The general downward movement of the crude death rate was interrupted during the war years. From the low point reached in 1942, the rate rose sharply to 10.9 in 1943, and remained at 10.6 in 1944 and 1945. However, as may be seen in Table B, mortality rates for almost every age group in the population declined during this period. These age-specific rates provide a better indication of changes in mortality risk than do crude rates, since they are less influenced by changes in the age composition of the population. During the war, such changes in population composition were particularly rapid, owing to the transfer of men in the armed forces to and from overseas duty. The mortality figures shown are for the continental United States and do not include armed forces overseas. The overseas population consisted, in the main, of physically fit young men among whom mortality is normally low. Their absence from the country during the war years left an older population, normally having higher mortality rates. Therefore, if no change in mortality risk occurred, the crude death rates for the continental population during the war years would be somewhat higher than during pre-war years. Conversely, the return to the United States of a large number of men in the armed forces may have been one of the factors responsible for the sharp decrease in the death rate during 1946.

DEATHS BY STATE

In 1946, crude death rates for residents of the individual states ranged from 7.5 for Utah to 11.7 for Montana, New Hampshire, and Vermont, with a median rate of 9.8. The number of deaths and death rates for each state are shown in Table C. While true differences in mortality conditions exist among the states, the major part of the variation in state crude death rates probably reflects the differences in the composition of the state populations with respect to age, race, and sex.

DEATHS BY CAUSE

The five leading causes of death in the United States in 1946, the numbers of deaths, and the crude death rates per 100,000 population were as follows: diseases of the heart, 429,230 and 306.8; cancer and other malignant tumors, 182,005 and 130.1; intracranial lesions of vascular origin, 125,646 and 89.8; nephritis, 81,701 and 58.4; and accidents (other than motor-vehicle accidents), 64,622 and 46.2. The first four of these causes also headed the list of leading causes in 1945. Pneumonia and influenza (combined), the fifth leading cause in 1945, dropped to sixth place in 1946 for the first time since the formation of the Death Registration Area (1900). Accidents, other than motor-vehicle accidents, was the sixth leading cause of death in 1945.

For the major infectious diseases, 1946 marked new record lows in the numbers of deaths and crude death rates. The number of deaths from pneumonia and influenza dropped from 68,386 in 1945 to 62,324 in 1946, a decrease of 8.9 per cent in the number of deaths, and the crude death rate declined sharply from 51.8 to 44.6, or 13.9 per cent. Tuberculosis caused 50,911 deaths in 1946 as compared with 52,916 in 1945, and the death rate for this cause was 36.4 in 1946 as compared with 40.1 in 1945. The proportionate decrease in the number of tuberculosis deaths was 3.8 per cent and that in the death rate was 9.2 per cent.

Lower mortality was also recorded for many other communicable causes. For the following diseases, decreases in mortality have been evident in almost every year during the past decade and continued in 1946; typhoid and paratyphoid fever, scarlet fever, diphtheria, dysentery, malaria, syphilis, rheumatic fever, pellagra, and diarrhea, enteritis, and ulceration of the intestines. For cerebrospinal meningitis, 1943 and 1944 had been relatively high mortality years, but decreases were recorded in both 1945 and 1946. The mortality rate for measles increased sharply in 1946 from the extremely low rate for 1945, but the 1946 rate for this cause was still lower than that for 1944. Mortality from poliomyelitis and polioencephalitis (acute), which has been at a relatively high level beginning with 1943, increased again in 1946.

Mortality from motor-vehicle accidents, which has been increasing since the cessation of wartime driving controls in 1944, rose again in 1946. There were 33,411 deaths from this cause, and the rate of 23.9 was 12.2 per cent higher than that for 1945. On the other hand, the mortality rate for all other accidents (46.2) was 10.1 per cent lower than that for the previous year.

Suicide and homicide had been declining during the pre-war and war years but increased sharply in the last year of the war, 1945. In 1946, the national homicide rate again showed a large increase of 12.5 per cent. The rate for suicide in 1946 increased by 2.7 per cent, a much smaller relative rise than that of 12 per cent in 1945.

MATERNAL AND INFANT MORTALITY

Particularly encouraging was the continuation, during 1946, of the declines in maternal and infant mortality. The number of deaths from diseases of pregnancy, childbirth, and the puerperium decreased from 5,668 in 1945 to 5,153 in 1946. This large relative decrease (9.1 per cent) occurred despite the unprecedented increase in the number of births during that year. The maternal mortality rate for 1946 is 1.6 per 1,000 live births (see Table A), 24 per cent lower than the rate for the previous year (2.1) and one-half the rate of five years ago (3.2 in 1941). The estimated infant mortality rate for 1946 is 33.8 deaths per 1,000 live births. This rate represents a sharp decrease of 11.7 per cent from the corresponding rate of 38.3 for 1945. Despite this large decrease in rate, the number of deaths during the first year of life increased by over 6,000 deaths from 1945 to 1946, owing to the increase in the number of births mentioned above.

SIXTH REVISION OF THE INTERNATIONAL LISTS OF DISEASES AND CAUSES OF DEATH

An international conference probably will be held in the spring of 1948 to revise the International Lists of Diseases and Causes of Death. A great deal of work has already been carried out by an Expert Committee for the Preparation of the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death of the Interim Commission of the World Health Organization. The proposal that this Expert Committee has developed is far more extensive than that of any previous decennial revision since it involves the international acceptance of a list and classification which will serve the purposes of both morbidity statistics and mortality statistics. It is also more definitive since it includes a tabular list of inclusion terms as well as an alphabetical index of medical terms. The Expert Committee has had two meetings, the first to prepare the list and the second to consider revisions and suggestions obtained from the various national governments to which the preliminary work was sent.

MARRIAGE AND DIVORCE STATISTICS

Central registers of marriage records are maintained in the state health departments of 31 states and in the Office of the Secretary of State of one state; and central registers of divorce records, in the health departments of 24 states. In the remaining states, statistics of marriage and divorce can be obtained only by special surveys conducted at the local level.

The only official national statistics of marriages and divorces in the United States are composite or estimated, largely because of the difficulty of obtaining adequate statistics under the present limited operating program. Their importance lies in the fact that they serve to indicate broad national trends. Furthermore, the statistics are restricted to enumerations of numbers of marriages and divorces occurring. No detailed data in these two

TABLE C

NUMBER OF MARRIAGES, DIVORCES, AND DEATHS; AND CRUDE RATES: UNITED STATES, EACH DIVISION AND STATE, 1946

(Marriages and divorces by place of occurrence. Deaths by place of residence. Rates per 1,000 midyear population, estimated by the Bureau of the Census)

Area	Number			Rate		
	Marriage[1]	Divorce[2]	Death[3]	Marriage[4]	Divorce[5]	Death[4]
United States	2,285,539	613,000	1,395,617	16.3	4.3	10.0
Northeastern States	485,538	—	405,786	13.1	—	10.9
New England	121,920	22,695	98,845	13.5	2.5	10.9
Maine	13,519	3,957	10,058	15.4	4.5	11.5
New Hampshire	10,261	2,062	6,049	19.9	4.0	11.7
Vermont	4,096	1,033	4,140	11.6	2.9	11.7
Massachusetts	57,100	10,342	51,398	12.4	2.3	11.2
Rhode Island	10,626	1,531	8,073	14.3	2.1	10.8
Connecticut	26,318	3,770	19,127	13.4	1.9	9.7
Middle Atlantic	363,618	—	306,941	13.0	—	10.9
New York	182,698	—	152,866	13.3	—	11.1
New Jersey	61,020	7,762	46,392	14.2	1.8	10.8
Pennsylvania	[6]119,900	—	107,683	12.0	—	10.7
North Central States	626,955	—	430,810	15.0	—	10.3
East North Central	412,015	—	294,576	14.4	—	10.3
Ohio	106,092	35,267	78,464	14.1	4.7	10.4
Indiana	[7]66,750	—	39,034	17.7	—	10.4
Illinois	[7]121,715	—	89,566	15.2	—	11.2
Michigan	78,808	[6]29,060	55,167	13.0	4.8	9.1
Wisconsin	38,650	8,131	32,345	12.2	2.6	10.2
West North Central	214,940	—	136,234	16.1	—	10.2
Minnesota	[6]38,600	7,794	26,938	13.7	2.8	9.5
Iowa	32,329	9,758	25,758	12.7	3.8	10.1
Missouri	[7]46,497	—	42,451	12.3	—	11.2
North Dakota	5,531	[6]1,100	5,080	10.3	2.0	9.5
South Dakota	8,393	1,547	5,508	15.3	2.8	10.1
Nebraska	14,130	4,656	12,440	11.1	3.7	9.8
Kansas	69,460	[6]9,000	18,059	37.3	4.9	9.7
The South	849,807	—	387,181	19.6	—	8.9
South Atlantic	365,979	—	173,284	19.2	—	9.1
Delaware	8,284	[6]500	3,229	28.9	1.8	11.3
Maryland	[7]69,472	8,408	21,783	31.8	4.0	10.0
District of Columbia	[7]15,059	2,361	8,289	17.9	2.9	9.8
Virginia	46,475	[6]9,300	28,154	15.6	3.2	9.4
West Virginia	[7]23,242	—	16,238	12.9	—	9.0
North Carolina	[6]36,972	10,059	28,724	10.2	2.8	7.9
South Carolina	[7]58,519	(8)	16,351	30.7	—	8.6
Georgia	[7]78,219	—	27,511	25.0	—	8.8
Florida	29,737	26,352	23,005	12.9	11.7	10.0
East South Central	224,504	—	99,203	21.1	—	9.3
Kentucky	[7]82,569	—	27,410	30.1	—	10.0
Tennessee	21,501	13,421	27,650	7.2	4.5	9.2
Alabama	56,310	13,952	24,727	20.1	5.0	8.8
Mississippi	64,124	9,438	19,416	30.5	4.5	9.2
West South Central	259,324	—	114,694	19.1	—	8.4
Arkansas	51,359	13,626	14,338	27.3	7.3	7.6
Louisiana	[7]41,081	—	22,030	16.3	—	8.7
Oklahoma	[7]23,792	—	18,620	10.7	—	8.4
Texas	[7]143,092	57,112	59,706	20.6	8.4	8.6

TABLE C (Continued)

Area	Number			Rate		
	Marriage[1]	Divorce[2]	Death[3]	Marriage[4]	Divorce[5]	Death[4]
The West	323,239	—	171,840	18.4	—	9.8
Mountain	155,205	—	41,833	36.3	—	9.8
Montana	12,974	3,207	5,595	27.1	6.7	11.7
Idaho	[6]7,394	—	4,585	15.7	—	9.7
Wyoming	3,858	1,676	2,135	14.7	6.4	8.1
Colorado	[7]16,230	—	12,058	14.3	—	10.6
New Mexico	18,779	3,834	5,436	35.5	7.4	10.3
Arizona	[7]27,003	—	5,737	43.4	—	9.2
Utah	[7]9,781	3,433	4,785	15.4	5.5	7.5
Nevada	[7]59,186	[6]19,500	1,502	437.1	146.0	11.1
Pacific	168,034	76,408	130,007	12.7	5.9	9.8
Washington	[7]45,736	[6]13,900	22,011	20.3	6.4	9.8
Oregon	14,303	10,208	13,318	9.8	7.0	9.2
California	107,995	[6]52,300	94,678	11.3	5.6	9.9

[1] Excludes marriages of members of armed forces overseas.

[2] Includes reported annulments.

[3] Excludes stillbirths and deaths among armed forces overseas.

[4] Based on population present in the area, including armed forces.

[5] United States rate based on total population, including armed forces overseas. State rates based on civilian population present in the area.

[6] Estimated.

[7] Marriage licenses issued.

[8] Under laws of South Carolina, no divorces may be granted. Figures on annulments not available.

— Data not available.

important fields are available at the national level.

A provisional total of 2,285,539 marriages in the United States was recorded in 1946, and an estimated total of 613,000 divorces (see Table C). Marriage and divorce rates per 1,000 population were 16.3 and 4.3, respectively (see Table A). These were the highest totals and rates on record for the United States for any one year. Revised figures for 1945 were 1,603,139 marriages and 494,000 divorces with respective rates of 12.1 and 3.5 per 1,000 population.

Total marriages increased 42.6 per cent in 1946 over 1945, while divorces increased 24.5 per cent during the same period. The percentage increase in marriages was about four times as great as in 1945 over 1944 when a rise of 10.4 per cent was recorded, while the increase in divorces was only slightly above the 23.2 per cent recorded in 1945 over 1944.

No data on marriages and divorces in 1947 are available as yet. However, provisional figures on marriage licenses issued in the United States during the first nine months of 1947 indicate that the trend in marriages is downward from the 1946 level, but remains well above the 1945 level.

During January-September 1947, a total of 1,526,809 marriage licenses was issued in the United States, a decrease of 13.4 per cent from a total of 1,762,288 issued in the same months in 1946 but an increase of 34.9 per cent over a total of 1,131,982 issued in the same period in 1945.

A breakdown of marriages by occurrence in the four major geographic regions—Northeastern, North Central, South, and West—for 1945-1946 indicates that in general the marriage trend by region followed the pattern observed for the country as a whole in that statistics for all regions reflected successive rises in 1945-1946. However, there was considerable variation between regions in marriage rates and total figures for these years. No estimates of divorces by region have been made because of significant gaps in data and the diverse factors affecting divorce statistics by state, and, hence, by region.

In 1946, marriage rates per 1,000 population were recorded by region from highest to lowest in the order named: South, West, North Central, and Northeastern, with respective rates of 19.6, 18.4, 15, and 13.1. When

TABLE D

NUMBER OF DEATHS AND CRUDE DEATH RATES, 1946; CRUDE DEATH RATES, SELECTED YEARS; FOR SELECTED CAUSES: DEATH-REGISTRATION STATES[1]

(Exclusive of stillbirths. Rates per 100,000 estimated midyear population. Numbers after causes of death are those of the detailed International List of Causes of Death, 1938 revision)

Cause of Death	1946[2]		1945[2]	1940[2]	1930	1920
	Number	Rate				
All causes	1,395,617	997.6	1,061.8	1,074.1	1,132.1	1,298.9
Typhoid and paratyphoid fever 1, 2	407	0.3	0.4	1.1	4.8	7.6
Cerebrospinal (meningococcus) meningitis 6	1,257	0.9	1.3	0.5	3.6	1.6
Scarlet fever 8	198	0.1	0.2	0.5	1.9	4.6
Whooping cough 9	1,241	0.9	1.3	2.2	4.8	12.5
Diphtheria 10	1,259	0.9	1.2	1.1	4.9	15.3
Tuberculosis (all forms) 13–22	50,911	36.4	40.1	45.8	71.1	113.1
Dysentery 27	952	0.7	1.2	1.9	2.8	4.0
Malaria 28	341	0.2	0.3	1.1	2.9	3.4
Syphilis 30	12,955	9.3	10.7	14.4	[3]15.7	[3]16.5
Measles 35	1,310	0.9	0.2	0.5	3.2	8.8
Poliomyelitis, polioencephalitis (acute) 36	1,845	1.3	0.9	0.8	1.2	5.7
Cancer and other malignant tumors 45–55	182,005	130.1	134.4	120.0	97.4	83.4
Cancer of the digestive organs and peritoneum 46	80,866	57.8	60.8	55.1	48.9	44.0
Cancer of the female genital organs 48, 49	22,646	16.2	16.9	16.0	13.8	12.2
Cancer of the breast 50	17,516	12.5	13.0	11.7	9.2	7.6
Cancer (other sites) 45, 47, 51–55	60,977	43.6	43.8	37.1	25.4	[4]19.5
Acute rheumatic fever 58	1,118	0.8	1.0	1.3	2.5	3.8
Diabetes mellitus 61	34,731	24.8	26.6	26.5	19.1	16.1
Pellagra (except alcoholic) 69	804	0.6	0.7	1.6	5.2	2.5
Intracranial lesions of vascular origin 83	125,646	89.8	97.8	90.8	89.0	93.0
Diseases of the heart 90–95	429,230	306.8	321.4	291.9	214.2	[5]159.6
Chronic rheumatic diseases of the heart 90a, 92b,c, 93c, 95b	23,559	16.8	18.8	20.8	—	—
Diseases of coronary arteries and angina pectoris 94	137,153	98.0	99.6	76.9	—	—
Diseases of the heart (other forms) 90b, 91, 92a,d,e, 93a,b,d,e, 95a,c	268,518	191.9	203.1	194.2	—	—
Pneumonia (all forms) and influenza 107–109, 33	62,324	44.6	51.8	70.1	102.5	207.3
Diarrhea, enteritis, and ulceration of the intestines 119, 120	8,090	5.8	8.7	10.3	26.0	[6]53.7
Nephritis 130–132	81,701	58.4	66.7	81.4	91.0	88.8
Diseases of pregnancy, childbirth and the puerperium 140–150	5,153	3.7	4.3	6.7	12.7	19.0
Congenital malformations and diseases peculiar to the first year of life 157–161	79,487	56.8	50.7	49.1	60.8	84.4
Suicide 163, 164	16,152	11.5	11.2	14.3	15.6	10.2
Homicide 165–168	8,784	6.3	5.6	6.2	8.8	6.8
Motor-vehicle accidents 170	33,411	23.9	21.3	26.1	26.7	[7]10.3
Accidents (excluding motor-vehicle) 169, 171–195	64,622	46.2	51.4	47.3	53.8	[8]60.7
Senility, ill-defined and unknown causes 162, 199, 200	27,607	19.7	22.0	23.7	30.4	31.8
All other causes	162,076	115.9	128.2	136.9	159.5	174.4

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[1] Death-registration states include the entire continental United States, beginning with 1933.
[2] Excludes armed forces overseas.
[3] Excludes aneurysm of the aorta for 1920 and includes "Aneurysm (except of heart)" for 193
[4] Excludes cancer of the pancreas.
[5] Excludes diseases of the coronary arteries.
[6] Includes ulcer of the duodenum.
[7] Excludes automobile collisions with trains and streetcars, and motorcycle accidents.
[8] Includes legal executions.

marriage totals were compared, however, the regional pattern shifted in certain important respects. The South reported the largest number of marriages (849,807) as well as the highest rate. The West, however, dropped from second highest with respect to the marriage rate to the lowest number of marriages for any region (323,239); and the North Central and Northeastern regions moved up to second and third with respective marriage totals of 626,955 and 485,538.

The same general changes were observed for 1945 when marriage rates and total marriages occurring were compared by region.

Thus, it may be inferred that during 1945-1946 a smaller proportion of the population married in the more populous regions of the North than in the South and West.

LIFE TABLES

The pamphlet "United States Abridged Life Tables—1945," issued as Vital Statistics—Special Reports, Selected Studies, Volume 23, Number 11, presents abridged life tables for the continental United States by race and sex. From these tables, it has been estimated that the average duration of life (expectation of life at birth) in the United States, based solely on 1945 mortality, was 65.8 years, or 2.2 years longer than it was found to be on the basis of 1939-1941 mortality (the latest data available for comparison). Comparison of similar data for each of the four race-sex groups in the United States shows that there was marked variation between these groups in the increase in the average length of life over this period. Thus, while this increment amounted to only 1.6 years for white males and 2.2 years for white females, it was 3.8 years for nonwhite males and 4.1 years for nonwhite females. However, even though the increment was considerably larger for nonwhites, their average length of life and their survival rates in 1945 still lagged far below those for whites. Similarly, the average duration of life, as well as the number of survivors to every age, continued to be higher for females when compared to the corresponding male group of each racial category.

Because of the considerable effect that the decrease in infant mortality between 1939-1941 and 1945 exerted

TABLE E

COMPARISON OF SELECTED LIFE TABLE VALUES: 1936-1941 AND 1945

	White				Nonwhite			
	Male		Female		Male		Female	
	1939–1941	1945	1939–1941	1945	1939–1941	1945	1939–1941	1945
Average remaining lifetime (in years):								
At birth	62.81	64.4	67.29	69.5	52.33	56.1	55.51	59.6
At age 1	64.98	66.1	68.93	70.8	56.05	58.8	58.47	61.8
Proportion alive at beginning of age interval dying during interval:								
5–10	.0058	.0050	.0044	.0035	.0079	.0055	.0067	.0051
20–25	.0114	.0095	.0080	.0061	.0313	.0241	.0287	.0216
40–45	.0299	.0275	.0210	.0178	.0730	.0606	.0639	.0502
55–60	.0980	.0938	.0653	.0569	.1607	.1444	.1448	.1245
Survivors out of 100,000 live births:								
To age 20	92,293	93,595	93,984	95,196	86,770	90,040	88,505	91,573
To age 65	58,305	60,580	68,701	72,532	35,912	41,856	40,718	47,824
Survivors to age 65 out of 100,000 alive at age 20:	63,174	64,726	73,099	76,192	41,388	46,486	46,006	52,225

on the expectation of life at birth, the improvement in the expectation of life at subsequent ages is significantly less, in each race-sex group, than at birth. Nevertheless, even at age five the expectation of life declined between 1939-1941 and 1945 by amounts ranging between one and three years for the various subdivisions. The continued improvement in the expectation of life at this and later ages is evidence of decline in the rate of dying in childhood, early adult life, and at the older ages.

INTERNATIONAL VITAL STATISTICS CO-OPERATION

Consultation services in vital statistics were carried on in Paraguay, Bolivia, Panama, Cuba, and Guatemala during the year. This is part of the International Vital Statistics Co-operative Program which is one segment of the Department of State Program for Co-operation with the American Republics. In addition to the work of the consultants, a number of students came from Latin-American countries to the United States during the year, receiving both academic and in-service training. The countries represented in this part of the program were Ecuador, Guatemala, El Salvador, Honduras, Bolivia, Nicaragua, Cuba, and the Dominican Republic.

This program involves the detailing of technical experts to the American Republics to act as consultants in vital statistics and public health statistics, and the awarding of intern training grants to selected officials of the American Republics to enable them to study vital statistics organization and administration in the United States and related public health statistics. It is designed to improve and standardize the vital statistics systems of the American Republics in accordance with resolutions adopted by a number of recent Pan American Conferences, especially the resolutions of the Eleventh Pan American Sanitary Conference held in Rio de Janeiro during 1942.

As a rule, the initial work of the consultants detailed to the foreign countries includes the preparation, under the supervision of the proper foreign government officials, of detailed studies regarding: (1) existing organization and methods for birth and death reporting; (2) procedures and operations of the statistical tabulation services concerned with vital statistics; (3) methods and procedures for medical record-keeping and resulting statistical activities of hospitals and other medical service institutions; and (4) government uses and requirements for public health statistics and vital statistics. Upon the basis of the studies conducted, plans and procedures are formulated with regard to vital statistics and related public health statistics, including organization, processing of records, coding and tabulation requirements, designing of forms, and the preparation of instruction manuals. If, after considering the studies and resulting plans and procedures formulated, the appropriate officials of the foreign government desire to proceed with the program of work, the consultant remains in the country as a technical consultant to assist in the development of the program.

The trainees from the American Republics observe and study vital statistics organization and administration under the supervision of officials of the National Office of Vital Statistics. Their program of work, which extends over a nine to 12 months' period, includes: (1) specialized study in an accredited university; (2) study and practical work in the National Office of Vital Statistics; (3) observation and study of organization, methods and procedures in state and local offices of vital statistics; (4) training in morbidity and hospital statistics; and (5) training in population census methods and procedures.

PERIODICAL PUBLICATIONS

American Druggist
572 Madison Ave., New York City.
American Journal of Anatomy
36th Street and Woodland Ave., Philadelphia.
American Journal of Clinical Pathology
Mount Royal and Guilford Aves., Baltimore, Md.
American Journal of the Medical Sciences
600 Washington Sq., Philadelphia.
American Journal of Nursing
1790 Broadway, New York City.
American Journal of Obstetrics and Gynecology
3523 Pine Boulevard, St. Louis, Mo.
American Journal of Pathology
East University Ave., Ann Arbor, Mich.
American Journal of Pharmacy
Philadelphia College of Pharmacy and Science, Philadelphia.
American Journal of Public Health and the Nation's Health
1790 Broadway, New York City.
American Journal of Surgery
49 West 45th Street, New York City.
Anatomical Record
36th Street and Woodland Ave., Philadelphia.
Annals of Surgery
227 S. Sixth Street, Philadelphia.
Journal of the American College of Dentists
350 Post St., San Francisco, Calif.
Journal of the American Dental Association
222 East Superior Street, Chicago.
Journal of the American Institute of Homeopathy
1601 Chestnut St., Philadelphia, Pa.
Journal of the American Medical Association
535 N. Dearborn Street, Chicago.
Journal of the American Pharmaceutical Association
2215 Constitution Ave., Washington, D. C.
Journal of Bacteriology
Mount Royal and Guilford Aves., Baltimore, Md.
Journal of Bone and Joint Surgery
8 The Fenway, Boston.
Journal of Clinical Investigation
300 Longwood Ave., Boston.
Journal of Dental Research
1121 Michigan St., Indianapolis.
Journal of Experimental Medicine
York Ave. and 66th Street, New York City.
Journal of Infectious Diseases
5750 Ellis Ave., Chicago.
Journal of Nervous and Mental Disease
64 West 56th Street, New York City.
Journal of Pharmacology and Experimental Therapeutics
Mount Royal and Guilford Aves., Baltimore, Md.
Journal of Social Hygiene
1790 Broadway, New York City.
Medical Life
4 St. Luke's Place, New York City.
Medical Record
215 Fourth Ave., New York City.
Medical Review of Reviews
4 St. Luke's Place, New York City.
Medicine
Mount Royal and Guilford Aves., Baltimore Md.
N. Y. State Journal of Medicine
292 Madison Ave., New York City.
Radiology
607 Medical Arts Building, Syracuse, N. Y.
Surgery, Gynecology and Obstetrics
54 East Erie Street, Chicago.
Yale Journal of Biology and Medicine
333 Cedar St., New Haven, Conn.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ACADEMY OF MEDICINE, 2 E. 103rd St., New York City.

AMERICAN COLLEGE OF SURGEONS, Johns Hopkins Hospital, Baltimore, Md.

AMERICAN GYNECOLOGICAL SOCIETY, 842 Park Ave., New York City.

AMERICAN HEART ASSN., INC., 1790 Broadway, New York City.

AMERICAN INSTITUTE OF HOMEOPATHY, 1601 Chestnut Street, Philadelphia, Pa.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, INC., 277 Alexander St., Rochester, N. Y.

AMERICAN MEDICAL ASSN., 535 N. Dearborn St., Chicago, Ill.

AMERICAN PUBLIC HEALTH ASSOCIATION, 1790 Broadway, New York City.

AMERICAN OPHTHALMOLOGICAL SOCIETY, 303 Whitney Ave., New Haven, Conn.

AMERICAN OSTEOPATHIC ASSN., 139 N. Clark St., Chicago, Ill.

AMERICAN PHYSIOLOGICAL SOCIETY, 19 W. Chase St., Baltimore.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, 531 N. Main St., South Bend, Ind.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER, INC., 350 Madison Ave., New York City.

AMERICAN SOCIETY OF TROPICAL MEDICINE, Ohio State University College of Medicine, Columbus, Ohio.

AMERICAN VETERINARY MEDICAL ASSN., 600 S. Michigan Ave., Chicago, Ill.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, 5 S. Wabash Ave., Chicago, Ill.

ASSOCIATION OF MILITARY SURGEONS OF THE U. S., Army Medical Museum, Washington, D. C.

ASSOCIATION OF SCHOOLS OF PUBLIC HEALTH, Johns Hopkins University, School of Public Health, Baltimore, Md.

COMMONWEALTH FUND, 41 E. 57th St., New York City.

EDWARD L. TRUDEAU FOUNDATION FOR RESEARCH AND TEACHING IN TUBERCULOSIS, Saranac Lake, N. Y.

JOHN AND MARY R. MARKLE FOUNDATION, 14 Wall St., New York City.

JOSIAH MACY, JR. FOUNDATION, 565 Park Ave., New York City.

NATIONAL INSTITUTE OF HEALTH, Bethesda, Md.

NATIONAL LEAGUE OF NURSING EDUCATION, 1790 Broadway, New York City.

NATIONAL TUBERCULOSIS ASSN., 1790 Broadway, New York City.

NEW YORK ACADEMY OF SCIENCES, 79th St., and Central Park West, New York City.

NEW YORK HEALTH DEPARTMENT, INC., 125 Worth St., New York City.

OSTEOPATHIC ASSISTING SERVICE BUREAU, 60 East 42nd St., New York City.

PUBLIC HEALTH RELATIONS COMMITTEE OF NEW YORK ACADEMY OF MEDICINE, 2 E. 103rd St., New York City.

ROCKEFELLER FOUNDATION, 49 W. 49th St., New York City.

SOCIETY OF AMERICAN BACTERIOLOGISTS, 1335 H. Street N.W. Washington, D. C.

SOCIETY OF MEDICAL JURISPRUDENCE, New York Academy of Medicine, New York City.

SOUTHERN MEDICAL ASSN., 1020 Empire Bldg., Birmingham, Ala.

UNITED HOSPITAL FUND, 370 Lexington Ave., New York City.

W. K. KELLOGG FOUNDATION, Battle Creek, Mich.

DIVISION XXIV

PSYCHOLOGY, PHILOSOPHY, ANTHROPOLOGY

PSYCHOLOGY

By Wilbur S. Hulin
Professor, Pacific University

GENERAL

Trends.—W. Dennis has edited a series of essays, called *Current Trends in Psychology* (Univ. of Pittsburgh), including such general topics as "Experimental Psychology," "Psychotherapy," and "Animal Psychology." *The Place of Psychology in an Ideal University* (Harvard Univ.), by a Harvard University commission under the chairmanship of A. Gregg, presents a candid recommendation that the subject be taught with an emphasis on the individual rather than upon abstract principles.

Texts.—New general books include those by F. L. Ruch, *Psychology and Life* (third edition; Scott Foresman), with additional chapters on Psychotherapy, World Peace; R. S. Woodworth and D. G. Marquis, fifth edition of *Psychology* (Holt); E. Dichter, *The Psychology of Everyday Living* (Barnes & Noble); C. E. M. Joad, *How Our Minds Work* (Philos. Lib.); M. Sherman, *Psychology for Nurses* (Longmans, Green); R. A. Davis, *Educational Psychology* (McGraw-Hill), which depends greatly upon experimental and classroom observation.

Popular Beliefs.—H. P. Longstaff has compared pseudo-psychological beliefs of college students in 1923 with those of 1947, and learns that present students reduce their belief in telepathy from 60 per cent to 7 per cent; phrenology from 25 per cent to 0 per cent; physiognomy from 55 per cent to 3 per cent (*J. Appl. Psych.*, Feb.).

Testing.—*Psychological Testing* (Longmans, Green), by J. L. Mursell, uses 100 standardized tests to illustrate the principles exemplified. L. E. Tyler, in *The Psychology of Human Differences* (Appleton-Century), supplements the essential statistical concepts with concrete examples from various test methods.

Theory.—Consciousness as physiological functioning is organismic in nature, says W. W. Martin; the basis is in the primary metabolism of protoplasm; it is the "syncytium" of the physico-chemical processes (*Psych. Rev.*, March). M. Sherif and H. Cantril, in *The Psychology of Ego-Involvements* (Wiley), expound the serial re-formations of the ego at different stages in life. W. Köhler has completely rewritten his *Gestalt Psychology* (Liveright); the various formulations of configurationism have been phrased in more intelligible language.

PERSONALITY

Total View.—G. Murphy's *Personality* (Harper) assumes a biosocial approach; wholeness, group membership, and culture are stressed. H. H. Anderson *et al* continue their *Studies of Teachers' Classroom Personalities* (Stanford Univ.), presenting follow-ups of the effects of dominative and integrative contacts on children's behavior. *Effective Personality Build-*

ing (McGraw-Hill), by G. R. Vaughn and C. R. Roth, offers the results of test and follow-up materials for five years on college students; the individual rather than traits is treated; the viewpoint is that of a student planning a business career.

Criteria.—C. R. Rogers urges that, in the clinical approach, the client's perceptual field should be used as the basis of understanding his personality (*Amer. Psychologist*, Sept.). A. Ellis has compared the direct and the indirect phrasing of personality questionnaires and has found no difference in the responses of problem groups of subjects as compared with the non-problem groups (*Psych. Monogs.*, No. 284). N. Stewart believes that the preferences of literary characters is a valid indication of personality traits, although a complete standardized test based upon this criterion alone would be difficult (*Amer. Psychologist*, Aug.). S. S. Tomkins has, from his first-hand clinical experience, assembled a complete historical account of the *Thematic Apperception Test* (Grune & Stratton) which is a current method of analyzing personality traits. The typical personality of the Hopi Indians is influenced by social pressure of the white race in the direction of compulsive neurosis where the ceremonial life is repressed: L. Thompson and A. Joseph (*Amer. J. Sociol.*, July).

Rorschach.—*The Rorschach Exchange and Journal of Projective Techniques* is the official organ of the Rorschach Institute, Inc., Chicago; it is a source of news regarding the projective methods of studying psychological problems induced by stress, brain injury, heart disease, and drug addiction. M. L. N. Northway and B. T. Wigdor show significant relationships between certain characteristic responses of the Rorschach test and the socio-economic status of school children; the unaccepted group show more of the so-called schizophrenic symptoms, while the highly accepted children show more of the psychoneurotic symptoms (*Sociom.*, May).

ABNORMAL

Texts.—*Abnormal Psychology* (McGraw-Hill), by J. D. Page, is a general text which discusses such recent movements as group therapy, hypnoanalysis, and shock therapy. W. C. Menninger's *Psychiatry in a Troubled World* (Macmillan) includes a discussion of international mental hygiene. L. E. Hinsie's *Understandable Psychiatry* (Macmillan) seeks to create a partner relationship between patient and physician. H. A. Carroll offers a *Mental Hygiene* (Prentice-Hall).

Programs.—Psychiatry in the Veterans Administration program recorded 70,000 neuropsychiatric disabilities in the Second World War; now it is recognized that most illnesses carry with them psychiatric implications, therefore in the present medical rehabilitation program the 13,000,000 veterans of the Second World War are receiving closely integrated mental care for all those who need medical attention: P. R. Hawley (*Amer. J. Psychiat.*, July). L. F. Shaffer declares: "The major problem in psychotherapy is its improvement through research. Schools and doctrines, conceived primarily to persuade and to teach, are unlikely to supply us with the basis of this improvement" (*Amer. Psychologist*, Nov.).

Therapy.—E. Klemperer recommends a pleasant and soothing type of hypnotherapy for patients who suffer chronic anxiety due to pathological organic conditions, such as lack of oxygen consumption (*J. Nerv. & Ment. Dis.*, Aug.). Withdrawal of morphine from an addict seldom causes a psychosis unless the patient has a previous history of insanity which may become intensified, advises A. Z. Pfeffer (*Arch. Neurol. & Psychiat.*, Aug.). A critical assessment of the process of beneficial substitute activities, called *Sublimation* (Macmillan), has been brought together by J. T. Davies.

Defectives.—W. Sloan and R. A. Cutts analyzed the performance of 700 mental defectives on the Stanford-Binet Scale and found that the typically difficult tests were those involving verbal ability and abstractions, and the easy tests were those dealing with concrete objects and involving rote memory (*Amer. J. Ment. Defic.,* Jan.).

SENSATION

Color.—W. D. Wright's *Researches on Normal and Defective Color Vision* (Mosby) is a balanced and complete summary of the present knowledge of color vision. The Ishihara color blind test is useful in detecting color weak persons who are receiving vocational guidance; C. E. Jurgensen has prepared a helpful table for the quick scoring of the test (*J. Appl. Psych.,* Feb.). Cebus monkeys seem to be red blind according to R. B. Malmo and W. F. Grether (*J. Comp. & Physiol. Psych.,* June).

Visual Development.—An important experimental study of the year came from the Yale University Primate Laboratory concerning the visual discrimination of chimpanzees which had been reared in darkness for the first 20 months of their life; when tested for vision through conditioning with shock to large yellow and black striped discs the developing of discrimination was very slow as compared with normal animals; discrimination of color and size came first, and discrimination of line and form came later: A. H. Riesen (*Amer. Psychologist,* Aug.). The detection of flicker by humans becomes less acute with increasing age, but no sex differences were ascertained by H. Misiak (*J. Exper. Psych.,* Aug.).

Perception.—R. K. Luneberg's *Mathematical Analysis of Binocular Vision* (Princeton Univ.) is a significant approach to the non-Euclidean geometry of visual depth. Commercial instruments for testing visual acuity, depth perception, and phorias have been found by R. J. Wherry to be sometimes better and sometimes worse than standard ophthalmological devices, and consequently all new devices should be given a rigorous psychophysical calibration before their value is accepted (*Amer. Psychologist,* Aug.). The perception of direction of a tilted straight line, measured by the observer's placing a dot beyond the judged extension of the line, can be radically altered by the field factors which are introduced: A. D. Salomon (*Amer. J. Psych.,* Jan.). W. Köhler has extended his work on figural aftereffect to include the third dimension (*ibid.,* Apr.).

Auditory Acuity.—H. Davis *et al* have published an experimental study of *Hearing Aids* (Harvard Univ.) showing the relative affectiveness of various designs of amplification. Speech hearing furnishes a useful test of auditory acuity in children; the children point to pictures corresponding to spoken words by a high fidelity phonograph record: L. Meyerson (*Amer. Psychologist,* Aug.).

Thresholds.—Sensitivity for intensity of sound is finer for binaural than for monaural hearing, according to W. A. Shaw *et al* (*J. Exper. Psych.,* June). J. M. Doughty and W. R. Garner report that very brief tones, *e.g.,* five-thousandths of a second, sound like clicks with no pitch characteristic; the pitch threshold arrives sooner with higher tones up to 500 v.s. (*ibid.,* Aug.).

Other Senses.—A detailed inventory of the sensations from muscles, tendons, and joints, experienced while piloting an airplane, is listed by E. H. Carnes (*Contact,* May). The aftereffects of cold sensations, aroused by punctiform stimulation, continue for as much as 60 seconds, as observed by trained subjects: N. B. Hall and K. M. Dallenbach (*Amer. J. Psych.,* April). A dirhinnic olfactory stimulator with readily changeable nose pieces for every stimulus and every subject has been designed by D. Foster *et al* (*ibid.*). The sense of taste in fishes is anatomically distinct from the chemical sense, according to E. Scharrer *et al* (*J. Comp. Neurol.,* March).

AFFECTIVE

Emotion.—Fear in aerial combat was counteracted by high motivation until the after-effects were felt at which time a typical neurotic state was commonly experienced: L. F. Shaffer (*J. Consult. Psych.,* May). *Don't Be Afraid* (Wilcox & Follett) is the title of a book by E. S. Cowles. S. Tenenbaum explains *Why Men Hate* (Beechurst). A book on psychodrama, called *The Theatre of Spontaneity* (Beacon House), by J. L. Moreno, the originator of the method, details with charts and action diagrams the analytic procedure intended. M. B. Arnold asserts that emotion is primarily a positive excitation of the thalamus and hypothalamus rather than a release from cortical inhibition (*Amer. Psychologist,* Aug.).

Pleasantness.—H. N. Peters and F. T. Rogers experimentally show that the feeling of pleasantness does not need an accompanying positive response toward the source of the feeling, but only a positive attitude toward the object (*J. Exper. Psych.,* Feb.).

Aesthetics.—In *Painting and Personality* (Univ. of Chicago), R. H. Alschuler and L. W. Hattwick report a study of 150 children between two and four years of age, observed daily, some for more than two years, in their original work with art materials; the meaningfulness of different media was noted; the main psychological evidence concerned a conflict between infantile dependency and developing self-assertiveness. C. E. Seashore opens new avenues of approach to the psychology of music in his book, *In Search of Beauty in Music* (Ronald). R. Arnheim calls art appreciation a process of perceptual abstraction, as illustrated by the detached art expressions of psychotics (*Psych. Rev.,* March). Use of the term, "psychic distance," is reviewed by L. D. Longmaan from the date of its origin in 1912 by Bullouch to its recent extension by Bell to include only a knowledge of form and depth (*J. Aesth. & Art. Crit.,* Sept.). R. Seddon describes two modes of perception and expression performed by artists when painting; one is a compromise between the sense impression of the original object and the sense impressions of the medium employed as the artistic product is being executed; the other is the expression of a mental concept with little modification by the medium employed (*ibid.*).

INTELLIGENCE

Levels.—Biographical *Studies in Genius* (Philos. Lib.) are offered by W. G. Bowerman. E. A. Doll distinguishes feeble-mindedness from intellectual retardation by means of an assortment of tests including those of motor proficiency and social competence from which mere maladjustment can be differentiated from real deficiency (*Amer. J. Ment. Defic.,* Jan.). M. L. Hutt has an "adaptive" method of applying the Revised Stanford-Binet test to poorly adjusted subjects in order to obtain a more valid I.Q. than by the routine "continuous" method (*J. Consult. Psych.,* March).

Measurement.—L. L. Thurstone presents a development and expansion of his statistical treatment of the "vectors of the mind" in his *Multiple-Factor Analysis* (Univ. of Chicago). Oral testing permits an examiner to judge a subject's manner, poise, diction, modulation, group attitude, tact, cooperativeness, leadership, and organizational approach: W. Brody and N. J. Powell (*Educ. & Psych. Meas.,* Summer). R. S. Ellis, in a thorough examination of the measurements of relative variability of mental traits, concludes that many "laws" and generalizations by different writers are not verifiable; many functions are really the sums of simpler functions; changes in the rate of development are correlated with growth and decline; the sexes are more constant in those traits in which each is superior (*Psych. Bull.,* Jan.). D. Simrall finds small correlation between intelligence test scores and the ability to learn (*J. Psych.,* Jan.).

Higher Processes.—F. L. Wells obtained high correlation between a Physical Science Motivations test and ability in quantitative thinking, and between a Sensitive Affect test (or social motivation) and verbal types of thinking; thus the verbal-quantitative dichotomy is significant for determining an individual's aptitudes (*ibid.*). A general increase in the ability to think in both verbal and mathematical terms during the years of college is shown by the results of the American Council on Education Psychological Examination; an average rise of 28 percentile points was found by L. Florence (*J. Educ. Psych.*, Feb.). On the other hand, A. L. Assum and S. J. Levy find little correlation between a college freshman psychology examination and the senior comprehensive examination (taken four years later); students judged to be adjusted to college life reveal as a group better achievement in their academic work (*ibid.*, May). N. Bayley brings to bewildered parents a comforting discovery in her conclusion: "As recorded in test scores, the course of intellectual growth in each child is unique, presenting an over-all pattern of development which rarely parallels the average for more than two years" (*Amer. Psychologist*, Aug.).

LEARNING

Seven Forms.—*The Nature and Conditions of Learning* (Prentice-Hall), by H. L. Kingsley, is organized in terms of seven forms of learning: motor skills, perception, memory, comprehension, solving, emotions, and attitudes. Suggestions for the instruction of first grade pupils are offered in J. J. Loftus' book, *Helping Our Young Children to Learn* (New York Bd. Educ.). H. M. Robinson explains *Why Children Fail in Reading* (Univ. of Chicago). In an examination of the process of "learning to talk," M. Schmideberg points to the relationship of talking with the child's ego-libido, and suggests that sublimations of the ego are revealed in the language habits of the individual during growth (*Psychoanal. Rev.*, July). In a Roundtable discussion of "learning as a psychosomatic problem," S. H. Bartley cites instances in which elementary sensations of seeing are determined by one's personal background of visual experience; E. M. Coles states that the incidence of reading disability by several members of a family indicates a somatic basis of this type of learning (*Amer. J. Orthopsychiat.*, July).

Training.—According to E. B. Jackson, discipline, "in its fine original sense," means the same thing as learning and teaching; it develops from the combined influence of motivation and guidance (*ibid.*, Oct.). In an attempt to condition "spinal" dogs, W. N. Kellogg *et al* decided that the slight changes in the reflexes employed were due to a "sensitization" of the response rather than true conditioning (*J. Exper. Psych.*, Apr.). When recent memories obliterate earlier ones (retroactive inhibition), a new measure in terms of longer verbal reaction-times was noted by L. Postman and H. L. Kaplan (*ibid.*).

PHYSIOLOGICAL

Texts.—The outstanding text of the year is J. R. Kantor's *Problems of Physiological Psychology* (Principia). A new periodical, *The Journal of Neurological Sciences*, edited by L. J. Pollock, has appeared. S. H. Bartley and E. Chute have rendered a significant service in delineating the relation between *Fatigue and Impairment in Man* (McGraw-Hill); the book deals with the facts of sleep, long endured strain, visual performance, and chronic syndromes.

Shock.—Two hundred cases of electroshock therapy showed after five years that 80 per cent of the patients maintained a high degree of recovery: N. K. Rickles (*Amer. J. Psychiat.*, July). E. B. Tietz reports social recovery in 21 out of 46 patients who submitted to at least 12 treatments of "electronarcosis" in which electrodes placed above the mastoid region carried an alternating current of about 125 m.a. for 12 to 30 minutes; the initial shock must be about 200 m.a. (which stops respiration), then within 30 seconds drops to 70 m.a. for 90 seconds, then increases to 125 m.a.; the range between inhibition of breathing and narcosis must be delicately gauged (*J. Nerv. & Ment. Dis.*, Aug.).

Brain.—K. U. Smith describes cases of bilateral integrative action of the human cortex in verbal associations as determined in subjects suffering from certain brain lesions; the results indicate dynamic relationships between areas of the brain, rather than fixed association pathways (*J. Exper. Psych.*, Oct.). T. C. Barnes suggests that good emotional adjustment is found in subjects who give stable electroencephalographic records with deep breathing (*Amer. Psychologist*, Aug.).

Heredity.—In a symposium on the distinctions between heredity and environment, L. Carmichael infers from a study of prenatal sensory development that human nature may be "nine-tenths inborn"; W. S. Hunter points out that man's great variability in behavior obscures the amount of basic inherited patterning that exists (*Psych. Rev.*, Nov.).

Organismic.—When animals are exposed to prolonged stresses, such as hunger, temperature extremes, fear, burns, or surgical interference, an adaptive process is set up by hormones in the pituitary gland which produce changes in both the nervous system and the viscera; when this process is exhausted death follows: B. F. Riess (*Amer. Psychologist*, Aug.). When rats, as infants, are frustrated in feeding they exhibit in adulthood greater tendencies to hoard and to gorge when further frustration of feeding occurs (*J. Comp. & Physiol. Psych.*, Oct.). G. H. Parker reviews 30 years of research on *Animal Color Changes* (Macmillan).

CHILD

Books.—E. Harms edits a *Handbook of Child Guidance* (Child Care) presenting the information needed by the physician, the psychiatrist, the psychologist, and the social worker. Continuing their 25-year follow-up on 1,400 superior children, L. M. Terman and M. H. Oden present a study called *The Gifted Child Grows Up* (Stanford Univ.).

Expression.—The contribution of self-expression and initiative in producing the human individuality is pictured at several age levels by V. Lowenfeld in *Creative and Mental Growth* (Macmillan). The July issue of *The Nervous Child* is devoted to a group of papers on "ego-development" and "ego-deviation"; for example, R. Dreikurs describes four goals of the maladjusted child, namely, to gain attention, to gain power, to get even, and to give up. V. Maxline's *Play Therapy* (Houghton Mifflin) aids parents in the intelligent guidance of children's self-expression.

Environment.—Comparisons between sociometric status and personal problems (such as acceptance by schoolmates) of adolescents indicate that the unaccepted youths have greater restraint and frustration in their home background: R. G. Kuhlen and H. S. Bretsch (*Sociom.*, May). H. L. Goldberg describes *Child Offenders* (Grune & Stratton) he has known in his work as case supervisor in New York City. C. A. Aldrich claims that a pediatrician's understanding of childhood personality must begin with a study of newborn babies who reveal chartable characteristics which can be followed through later environmental modifications (*Amer. J. Orthopsychiat.*, Oct.).

SOCIAL

General.—*Readings in Social Psychology* (Holt), sponsored by the Society for the Psychological Study of Social Issues, includes condensations of books as well as original articles. G. W. Allport complains: "Addiction to machines, rats, or infants leads us to overplay those features of human behavior that are peripheral, signal-oriented, or genetic. Correspondingly, it causes us to underplay those features that are central, future-oriented, symbolic." As a result, the psychologist has not created ideal models for moral conduct (*Psych. Rev.*, July). H. W. Odum's *Understanding Society* (Macmillan) gives a careful treatment of concepts of regionalism and technicways.

Morality.—A timely *Handbook of Correctional Psychology* (Philos. Lib.) has been compiled by R. M. Linder and R. V. Seliger. Racial frames of reference affect moral judgments, and the racial influences should be taken into account in counseling, cautions M. Seeman (*Amer. Sociol. Rev.*, Aug.). T. Parsons includes among the primary sources and patterns of aggression in the social structure of the western world such psychological motives as institutionalization of adolescent values, perceived in the attack upon symbols, and also in the "father-son" type of relationship which produces conflict between solidarity groups (*Psychiat.*, May). W. K. Layton outlines a means by which the techniques of school counseling can be used in the out-of-school community (*Educ. & Psych. Meas.*, Spring).

Opinion.—G. W. Allport and J. Postman, in *Psychology of Rumor* (Holt), summarize the laboratory tests of rumor circulation, distortion, elaboration, and consequent effect on society. Trends in public opinion from 1944 to 1946, derived by the Psychological Corporation's Index of Public Opinion, yield "barometric" changes in America's attitudes on such national issues as war with Russia (on which the affirmative opinion has increased from 43 per cent to 74 per cent: H. C. Link (*J. Appl. Psych.*, Apr.).

Popularity.—In a study of popularity in college, J. W. Reilly and F. P. Robinson found that location in a dormitory, *e.g.*, near to or remote from a popular student, does not influence another's popularity (*Educ. & Psych. Meas.*, Summer). Leadership criteria, as based on tests of 222 boy scouts, were labeled "helpfulness," "serious interest": A. C. VanDusen (*Amer. Psychologist*, Aug.).

INDUSTRIAL

Efficiency.—*Work and Effort* (Ronald), by T. A. Ryan, rounds up the research literature on fatigue, aptitude, and incentive in various industrial jobs. F. B. Davis reports on current employment accomplishments in his monograph, *Utilizing Human Talent* (Amer. Counc. Educ.). D. B. Dill reveals a psychological effect on industrial workers who were administered what were represented to be vitamin pills but were not; 71 per cent of these workers reported gains in health and vitality; compared with these, 77 per cent who were administered real vitamin pills reported gains in health and energy (*Proc. Amer. Philos. Soc.*, Aug.). Visual aids, such as "work simplification blocks," and "job training charts," greatly accelerate the training programs of workers: E. S. Howard (*Factory Manag. & Mainten.*, Oct.).

Personnel.—J. Kaplan has edited *The Encyclopedia of Vocational Guidance* (Philos. Lib.) which gives a wide range of information on the validity and reliability of existing tests, types of advisement for various jobs, and a survey of vocational trends. *New Methods in Applied Psychology* (Univ. of Maryland), by G. A. Kelly, introduces the contributions devised by the military psychologists during the war. A series of papers on improving human relations in industry includes an article by A. H. Leighton on the "applied science of human relations" involving techniques of developing a common purpose cultivated by formal organization or informal organization, such as the grapevine (*Personn. Admin.*, July). Consulting psychologists must acquire techniques of good working relationships with employees in order that the psychological techniques of personnel management be successfully applied: B. J. Covner (*Amer. Psychologist*, Aug.); the counselor must keep in mind the inertia or slowness of all human beings in accepting new ideas (idem, *J. Consult Psych.*, Sept.).

PHILOSOPHY

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PHILOSOPHY AND THE PRESENT CULTURAL CRISIS

The pattern of post-war philosophy in America was further clarified during 1947. The philosophy of the past two or three years can not yet be seen in proper historical perspective, and it would be rash indeed to attempt to predict the shape of things to come in American philosophy. Nevertheless, a number of trends have emerged in the philosophy of the recent past which may be described as historical vectors, pointing toward probable future developments. Perhaps the most significant and encouraging feature of the contemporary scene in American philosophy is the philosopher's urgent sense of his responsibility in the present crisis of Western culture. The philosopher is acutely aware that philosophical ideologies have, in the past, contributed to world conflict and that the primary obligation of philosophy in the present political and social crises is to promote intercultural understanding.

This task, however, can be performed only in the light of an adequate understanding of the ethical and philosophical foundations of our democratic institutions as unfolded in the historical development of the American philosophical tradition. The philosopher has not, however, permitted his sense of responsibility in a cultural crisis to interfere with the pursuit of his distinctively philosophical enquiries as a disinterested seeker after truth. Technical investigations in the fields of metaphysics, logic and semantics, and theory of knowledge, far from having been neglected, have been carried on with intensified vigor in the appreciation that philosophic world-views have, in the past, played a decisive role in determining the course of world history and that survival of our culture may depend in part on the character of our metaphysical commitments. The vitality of philosophical speculation in the present crisis of our social, cultural and political institutions strikingly illustrates Hegel's famous remark in *The Philosophy of Right:* "The owl of Minerva takes its flight only when the shades of night are gathering."

THE AMERICAN PHILOSOPHICAL TRADITION

American philosophers feel a justifiable pride in the richness of our philosophical heritage and the influence which it has exerted in the molding of our democratic institutions, and they realize that American democratic ideals can be defended against alien ideologies only by understanding these ideals in the context of the American philosophical tradition. Professor Herbert W. Schneider's *A History of American Philosophy* (Columbia University Press) eloquently illustrates the theme that philosophical thought in America has never been divorced from social consciousness and social action. Though he does not attempt to read into the history of American thought a "central content, dominant note, or moral lesson," his survey testifies to a pervading sense among American philosophers of the relevance of philosophy to the problems and issues of our democratic society. After a brief survey of The Colonial Period, the author considers in Part II, "The American Enlightenment" and observes that "Never in America were philosophical thinking and social action more closely joined . . . than during this period." In Part III, "Nationalism and Democracy," the reader encounters many relatively unknown figures of the early nineteenth century who represent liberal, utilitarian tendencies in social and political philosophy. The author contends that the "American bourgeois socialism" of this era is "indigenous and not merely an extension of European movements" (p. 207). Professor Schneider in Part IV, "Orthodoxy," and in Part V, "The Transcendental Temper" discusses Emerson, Thoreau, and Alcott and, in addition, revives a number of unfamiliar thinkers of orthodox religion and of transcendentalism. Part VI, "Evolutionism and Human Nature," traces naturalistic tendencies in American thought from John Fisk to William Graham Sumner, E. A. Robinson and George Santayana. Josiah Royce and other American philosophers in the idealistic tradition are discussed in Part VII. The book culminates in Part VIII, "Radical Empiricism," in an account of the development of the pragmatic movement; the teachings of William James' pragmatism and John Dewey's instrumentalism are adequately and sympathetically presented in their psychological context and in their social and educational ramifications. C. S. Peirce, Justice Holmes, T. V. Smith, A. C. Barnes, and other figures associated with the pragmatic movement are also discussed. The chief significance of the book as a whole, and of this part especially, is its wealth of illustration of the theme that American philosophers have rarely neglected the social, political, religious, and humanistic import of their doctrines.

ONE HUNDRED YEARS OF AMERICAN PHILOSOPHY

The *Philosophical Review,* in its July issue (Vol. LVI, 4), inaugurated a new policy of "devoting occasional numbers to symposia on special topics currently of concern to philosophers . . ." The first of these symposia, consisting of papers read at the meeting of the Western Division of the American Philosophical Association at the University of Iowa, May 10, 1947, was devoted to a critical appraisal of the past one hundred years of American philosophy.

Prof. Herbert W. Schneider opened the symposium with a paper on "A Century of Romantic Imagination in America," in which he briefly characterized three forms of romanticism. (1) "Romantic social philosophy and philosophy of history." Professor Schneider interprets the history of American socialism as "a chapter in the history of Romanticism"; he contends that "socialism was for a generation either the ideology of small cooperative communities . . ., or the ideology of the universal spiritual fraternity of mankind . . ." and that "the most popular ideology . . . was the romantic theory of the social Gospel, the coming of the Kingdom of God" (p. 354). (2) "Romantic psychological empiricism." The second variety of romanticism which is psychological in its sources is "an exploration of the sub- and superconscious"; "a century ago this form of romanticism took a wild religious turn —spiritualism . . ." Many of the features of this earlier psychological romanticism are preserved in the psychology of William James. (3) "Romantic metaphysics." The third type of romanticism attains its fullest expression in the metaphysical idealism of Josiah Royce, which Professor Schneider characterizes as "unrealism." Royce gave this form of romanticism its classic formulation when he declared "the impossibility short of absolute experience of uniting the world of description and the world of appreciation . . ."

Prof. Max H. Fisch in his paper, "Evolutionism in American Philosophy," sketches the impact of evolutionism on American thought from early American Darwinism to Dewey (pp. 357-373).

Prof. Arthur E. Murphy, in his article, "Ideals and Ideologies, 1917-1947" (pp. 374-389) undertakes a historical study of selected philosophical ideas of the recent past. This study is intended "not as a preview of what future generations may write about our recent past from the standpoint of a present we cannot share, but as an estimate now for those who have lived through it . . ." Murphy restricts his attention to "the climate of opinion and habits of thought of the period concerning the nature, function, and validity of the ideals by reference to which men normally explain or justify their conduct . . ." Widely as the new realism, pragmatism, personalism, and temporalism of this period diverged from one another, they agreed that the function of philosophical enquiry is "the free and critical examination of the basic assumptions on 'first principles' of morality, religion, science and common sense." "The rediscovery of the efficacy and 'social reality' of ideals as ideologies was an event of major philosophical importance. It carried with it the recognition that the ideals or 'myths' that define the concensus of belief or valuation within any society do make a difference and sometimes a decisive difference in its social behavior." Outside academic circles, the two dominant philosophical doctrines of the period were Marxism and Scholasticism. Murphy shrewdly observes that "What has not been sufficiently noticed is the important respect in which they were in agreement—*viz.* their ideological absolutism."

Prof. Edgar S. Brightman's article, entitled "Philosophy in the United States, 1939-1945," which was prepared "at the request of the American Council of Learned Societies, partly for the information of scholars in other countries," concludes the symposium. It contains a valuable summary of the progress of research during the war period and lists important publications under the headings: History of Philosophy, American Thought, Theoretical Ethics, Aesthetics, Epistemology, Metaphysics, Theory of Value, and Philosophy of Religion. The list, though not intended as an exhaustive bibliography, is an exceedingly useful guide to the philosophical literature of the war period.

PHILOSOPHY AND THE HUMANITIES IN THE CENTURY AHEAD

The Princeton University Bicentennial Conference on "The Humanistic Tradition in the Century Ahead" gave prominence to the role of philosophy in the development of the humanistic tradition and sought to project its future role in the century ahead. Participating in the conference were distinguished European and American philosophers, including George H. Sabine, George Boas, Charles W. Hendel, Werner W. Jaeger, Irwin Edman, Arthur O. Lovejoy, Salvador De Madariaga, Richard P. McKeon, Stephen C. Pepper, I. A. Richards and Theodore M. Greene.

Prof. Donald A. Stauffer in summarizing the conference in a pamphlet published by Princeton University says: . . . "the speakers themselves were in the process of creating new ideas through a kind of reaction in intellectual chemistry, and of giving rich complexity to such old words as 'freedom,' 'democracy,' 'responsibility,' 'synthesis,' 'value,' 'choice,' 'historicity,' 'transcendent,' 'organic,' 'humanistic'—yes, and perhaps to even the most mysterious word of all: 'man.'"

Pepper, a spokesman for philosophic humanism, maintained that a method which, like the Hegelian, seeks to comprehend the whole of life in a single system or theory of organic unity was not truly humanistic; the true humanist accepts all evidence however diverse, rather than impose or assume organic unity. Lovejoy advocated the inclusion in the college program of a course in philosophical anthropology, taught with the philosophy department as center, which should concern itself with the question: "What is man, and what is the matter with him?"

Professor Stauffer's summary of the conference lists the following points which represented the opinions of the majority of the members of the conference: (1) "Nationalism is today the great enemy of humanism since frontiers mutilate or compartmentalize the human spirit, (2) Humanism implies action as well as contemplation, (3) humanism fosters freedom, (4) . . . the humanistic tradition does not foster anarchy, though it respects the individual, it is aware of society, (5) Humanists today are middlemen in a complex democracy."

MAN AND HIS MYTHS

The spirit of humanism pervading the earlier philosophical writings of the late Prof. Ernst Cassirer is reaffirmed in his posthumously published work, *The Myth of the State* (Yale University Press). Professor Cassirer, although he came to America late in his brilliant scholarly career, displayed a profound and sympathetic understanding of democratic ideals and institutions. He appraised the values of the democratic way of life in the setting of the humanistic tradition and sharply defined the basic issues between democracy and that arch-enemy of humanism—Nazi totalitarianism. Professor Cassirer's humanism proposed as the defining trait of man his exercise of the symbolic function in language, art, science, religion, and other "symbolic forms." He replaced the Aristotelian definition of man as "the rational animal" with the conception of man as "the symbol-making animal," a definition which differentiates man from the lower animals as sharply as the Aristotelian.

Among the symbolic functions of man, myth-making is one of the most characteristic and significant. In the first part of *The Myth of the State,* entitled "What Is Myth," Cassirer reformulated his theory of myth as a symbolic form; "myth," he says, "is the art of expressing, and that means organizing [man's] most deeply rooted instincts, his hopes and his fears" (p. 49). In Part II, "The Struggle Against Myth in the History of Political Theory," he traces historically the attempt "to see the whole of human nature in an ethical rather than in a mythical light" (p. 60). Part III, "The Myth of the Twentieth Century" deals with the revival of myth in support of racism and the totalitarian state. "The powers of myth were checked and subdued by superior forces. As long as these forces, intellectual, ethical and artistic are in full strength, myth is tamed and subdued. But once they lose their strength, chaos is come again." (p. 298) Professor Cassirer traces the evils of the Nazi political philosophy to a perversion of the myth-making function of man; the racial and political myths of the Nazis were among their most effective propagandistic weapons. The author at times overstates his case against the political myth in seeming to suggest that the political myth is inevitably a sinister influence in human culture and society. In harmony with his basic definition of the myth in the political sphere, he could very properly have maintained that myths are dangerous only when they are the weapons of an immoral, political group, but have a legitimate function even in a Christian and democratic social order.

Man Against Myth (Little, Brown) is the arresting title of a brilliantly written essay by Prof. Barrows Dunham, which defines myth in radically different terms from Cassirer's book: the myth as defined by Cassirer, is largely an *imaginative* construction; the myths combated by Dunham are errors of the *intellect* similar to the Baconian "idols." His book is a devastating attack on the following prevalent and influential myths of present-day America: that you can not change human nature; that the rich are fit and the poor unfit; that there are superior and inferior races; that there are two sides to every question; that thinking makes it so; that you can not mix art and politics; that you have to look out for yourself; that all problems are merely verbal; that words will never hurt me; that you can not be free and safe. The destruction of each of these "idols" of modern man, though in part factual, is also philosophical; Dunham subscribes to the thesis that philosophy is the proper antidote of myth.

THE NATURE OF MAN

A Panel Discussion of the topic, "The Nature of Man," was a feature of the Forty-Third Annual Meeting of the Eastern Division of the American Philosophical Association, held at Yale University, Dec. 26-28, 1946. A great diversity of shades of philosophical opinion was represented in the four papers, the abstracts of which appeared in *The Journal of Philosophy* (Vol. XLIII, 25).

The naturalistic interpretation of man was defended by Prof. Abraham Edel: "The materialist-naturalist tradition contends that to view man as part of nature brings enrichment of quality and enhancement of value, for it encourages attention to causal conditions whose control alone can make men free." Professor Edel admits that "Mechanical materialism at certain stages carried the values of power, individual success, self-aggrandizement, and theoretically it came to favor ethical relativism," but he argues that "a mature materialist-naturalist outlook no longer interprets its ethical concepts reductively . . . The socio-historical necessities of a given period, *e.g.* global peace today, are capable of supplying criteria which give special structure to the moral field and a scientifically objective basis to moral inquiry. A materialist-naturalist ethic, so far from being committed to arbitrary relativism, provides a firm ground for an all-human ethic, including a deepened democratic outlook and a cosmic vision."

At the opposite extreme, Prof. Paul Tillich developed the philosophical foundations and implications of a theological humanism. Professor Brand Blanchard adopts a moderate, idealistic position which recognizes that man lives on "a hierarchy of levels." "As a body, he obeys the laws of physics. As a body alive, he obeys the laws of biology. As a conscious being, he obeys the laws governing the association of ideas. He is also, though brokenly, a moral and rational being." Prof. Lewis M. Hammond, in the spirit of Leibnizian compromise, suggest that ". . . each of the different views of the nature of man reflects some partial aspect of his nature."

Nature and Man, by Prof. Paul Weiss (Holt), is not, as the title might suggest, an essay in naturalistic metaphysics. It does, indeed, consider man's place in physical nature, but its conception of man and his freedom is far closer to traditional idealism than to reductive naturalism. "What is needed today," says Weiss, "is a philosophy which is adequate to all aspects of existence and thus has room to assert that man is both natural and free" (p. xv). Weiss' delineation of the task of philosophy is reminiscent of Platonic eternalism: "Philosophy speaks of the permanent and essential in undeniable ways, to provide a revelation of the nature of things, holding everywhere and always" (p. xviii). Weiss' ambitious project could well be described in Kantian language as the investigation of the metaphysical foundations of ethics. In the first part, entitled "Causation and Freedom," the reality of freedom and its ultimate compatibility with natural causation are affirmed. He resolves the antimony of freedom by asserting that, though free activity is creative and unpredictable, once it has occurred, it can be viewed retrospectively as necessary and inevitable. In the second part of the book entitled, "The Psyche and the Self," he describes the unfolding of human selfhood and differentiates creative processes of the human self from the conscious and occasionally intelligent activities of animals. The activities of the self, though "expressed in and through the body . . . may be expressed as a mind and as a will" (p. 241). Thus "the self is a self of a natural yet ethical man" (p. 252). The ultimate ethical import of the entire book is epitomized in these words: "A man, because he is responsible, owes it to himself to plumb the foundations of ethics and make evident to himself what he ought to be" (p. 267).

SIGNS, LANGUAGE, AND HUMAN BEHAVIOR

Prof. Charles Morris' *Signs, Language and Behavior* is a systematic attempt within the framework of behavioristic psychology to formulate a philosophical theory of the function of signs, including linguistic signs. Professor Morris' sophisticated version of behaviorism is a far cry from crude Watsonian behaviorism, yet it preserves certain of the most characteristic features of the earlier version. Morris, like Watson before him, seeks to exclude from psychology all explicit reference to thought, consciousness and other "mentalistic" processes and to restrict psychology to the observation and measurement of gross reactions of organism. Watson's theory of language as implicit or subvocal speech, established by a conditioning process, is transformed by Morris into a highly refined theory of signs as dispositions to respond in characteristic ways. But many of the old familiar concepts of Watsonian behaviorism are recognized in their formal dress in the new science of "semiotic."

Semiotic is the general theory of signs and of sign-using behavior. Its aim is to provide "a set of terms to talk about signs taking account of current distinctions but attempting to reduce for scientific purposes their vagueness and ambiguity" (p. 4). In the detailed elaboration of the science of semiotic, Morris first defines such elements of the sign-situation as "interpreter," "sign," "referent" in behavioral terms, and then distinguishes the various types of signs behaviorally. The informative, valuative, incitive, and systematic functions of signs are carefully differentiated, and language is assimilated to semiotic by construing it as a system of signs having relatively constant signification for different users and capable of entering into combination to form more complex signs. Professor Morris' subtle and detailed analysis of the constituents of sign-situations and his elaborate classification of the functions of signs may prove semantically and linguistically valid even though the behavioristic substructure of his theory may be untenable.

Morris' theory of signs, in spite of its behavioristic basis, is not without its humanistic significance. He interprets religious discourse in terms of the prescriptive and incitive functions of signs; science in terms of designative and informative; while poetry is primarily valuative. Philosophy itself is a criticism and systematization of beliefs, differing from science, art, and religion in "the comprehensiveness of the system of beliefs which it presents to us for adoption." Nor does Morris ignore the educational significance of the theory of signs; "an education which gave due place to semiotic would destroy at its foundations the cleavage and opposition of science and the humanities" (p. 246).

The contrast between Morris' behavioristic semiotic and Cassirer's philosophy of symbolic forms (referred to in the section on "Man and His Myths" above) is illuminating. The latter theory, in the tradition of classical idealism, interprets symbols as distinctively mental and human; the former theory, which is in the naturalistic tradition, interprets signs behaviorally and endeavors to establish a continuity between the crude signs which function in animal behavior and the complex signs employed in the scientific and philosophic activities of man. Morris and Cassirer are at opposite poles psychologically and philosophically, yet they are both convinced of the centrality of symbolism and linguistics in the understanding of man's social, political, and cultural activities. Perhaps, in spite of their terminological and philosophical divergences, the insights and analyses of semiotics and the theory of symbolic forms are mutually translatable. In any case, the convergence of the naturalistic and idealistic traditions on issues relating to the nature of symbols and their function in human discourse, is an encouraging trend in contemporary philosophy.

ANTHROPOLOGY AND ETHNOLOGY

By Marian W. Smith
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AREA STUDY

Scientific trends may be slow in developing, but once underway they often show surprisingly rapid results. A significant anthropological shift toward work in Asia and related areas, and toward community studies of national or local groups both in this hemisphere and abroad, occurred during the war years. Anthropology was by no means alone in this interest which was coupled with a growing realization on the part of all of the various social sciences that adequate studies of the modern world called for cooperative work. Apparently simple problems in the field of any one of the social sciences were apt to lead directly to some sister science or discipline. As the subject matters of the social sciences come under better control, the need for cross-disciplinary researches becomes more pressing. Persons trained in world areas beyond the boundary lines of Europe and America were pitifully few in number. World area programs which had been of value in training war personnel were continued. Others were initiated and world area study has now become one of the most important developments in the field of higher education.

During 1947, the universities intensified their interest in area study both on the graduate and undergraduate levels, and the national foundations were most generous in their support of such study. Latin America study centers have been in existence for some time and institutes for area study now exist in various stages of development in many of the large universities: Far Eastern Studies, Cornell; Near East, Princeton; Southeast Asia and the Pacific, Yale and Stanford; China, University of Washington, Harvard, and Yale; Japan, University of Michigan; India, University of Pennsylvania; Russia, Columbia, Harvard, and Syracuse. A survey of areal programs was made by Robert B. Hall and published in May as Pamphlet 3 of the Social Science Research Council under the title *Area Studies: with special reference to their implications for research in the social sciences.*

Funds for study and for research in Asian and European areas will be made available under the Fulbright Act (Public Law 584-79th Congress), which amends the Surplus Property Act of 1944. The promise of adequate financial backing has stimulated plans for research in these areas and various attempts have been made to prevent duplication of effort and haphazard planning. The National Research Council, Division of Anthropology and Psychology, set up a Committee on Asian Anthropology under the chairmanship of Lauriston Sharp. The first National Conference on the Study of World Areas, sponsored by the Committee on World Area Research of the Social Science Research Council, was held at Columbia University Nov. 28-30. Area panels covered Latin America, Europe, Soviet Union, Near East, Southeast Asia and India (later changed to Southern Asia), and the Far East. Important as teaching programs in the institutes may be, members of the conference were unanimous in their feeling that priority should be given to research in the areas. The conference also concluded that area work should supplement but not replace the older and basic training in the several social sciences and in the humanities.

FIELD WORK IN ETHNOLOGY

Field work in ethnology involves what may be termed incipient area study but it has too often been limited to the efforts of one or, at best, two persons. Although many plans for area study in Asia were underway, actual work during the year was rather limited. Cornelius Osgood of Yale University spent some time in Korea, and Morton Fried started a Chinese community study under the auspices of the Social Science Research Council. Dorothy Spencer remained in India. The largest single effort still remained the United States Strategic Bombing Survey of Japan. Further work in Japan has been made practically impossible by the occupation.

RESEARCH PROGRAM IN MICRONESIA

One of the most comprehensive research programs yet attempted got underway in Micronesia. The Pacific Science Board of the National Research Council heads up the program which includes 44 anthropologists from 22 institutions. Funds are being provided by the Office of Naval Research, the Viking Fund, and participating institutions. Forty persons are still in the islands or have already returned from field work there. The so-called CIMA or Coordinated Investigation of Micronesian Anthropology is an outgrowth of the recommendations made by the Pacific Science Conference, June 1946, and is the first research program sponsored by the Pacific Science Board. George Murdock is scientific coordinator.

RESEARCH IN CONTEMPORARY CULTURES

A second major research project began in 1947 under the direction of Ruth Benedict at Columbia University. It is a study of certain groups of European and Asiatic origin in New York City with priority given to French, Czechoslovakians, Jews, Russians, and Chinese. The project, Research in Contemporary Cultures, is financed under the Social Science program of the Medical Sciences Branch of the Navy. Margaret Mead, Conrad Arensberg, Ruth Bunzel, Geoffrey Gorer and David Rodnick are anthropologists supervising the research which is being carried on with the cooperation of psychologists, psychiatrists, political scientists, and other social scientists. The project has a field office at 411 East 69th Street, New York.

FIELD WORK IN LATIN AMERICA

Field work in Latin America has reached a new stage. Much work is being done both in ethnology and archaeology by regional personnel, some of whom have been trained in anthropology in the United States. Mexico and Brazil are leaders in this gratifying development. The Smithsonian Institute of Social Anthropology under George Foster has direction of several projects which also include local personnel; Donald Pierson is working with students from the Escola Livre de Sociologia e Politica of Sao Paulo among so-called Caboclo communities; J. H. Rowe began work in collaboration with the Institute Etnologico among the Guambiana Indians near Popayan; Isabel Kelly has charge of ethnological research in Tajin, near Papantla; and A. Holmberg and F. W. McBryde studied the social anthropology of the Viru Valley, Peru as projected in that area several years ago.

Members of other institutions have also continued ethnological field work. Alfred Metraux spent time in various parts of Latin America in connection with plans for UNESCO. Norman McQuown left to gather material on the Huastec language. Oscar Lewis spent the summer in the Mexican village of Tepoztlan in which he worked previously, and N. D. Humphrey of Wayne University continued his work in Tecolotlan, Jalisco. Morris Siegel and Marguerite King led students from the University of Puerto Rico in a study of Naranjito, P. R. An extensive Puerto Rican program, sponsored by the University of Puerto Rico for inquiry into problems of human biology and cultural anthropology, also got underway. Dean Antonio J. Colorado of the University, Clarence Senior of the Social Science Research

Center, University of Puerto Rico, and Harry Shapiro formulated the project, and it is now being carried forward with the help of Columbia University and the American Museum of Natural History. A. E. Rojas, formerly of the University of Chicago, has assumed direction of a four-year ethnological-sociological survey of the Papaloapan River Valley.

ETHNOLOGICAL EXPEDITIONS

The University of California, Berkeley, has an expedition in South Africa. Researches on early man are being carried out in the Makapan Caves under the direction of Charles L. Camp, paleontologist, and E. M. Loeb as a member of the expedition is making an ethnological study of Ovambo and of a Bushman group. Richard Slobodin finished work in the vicinity of Fort McPherson on the Mackenzie River where he was a fellow of the Arctic Institute. Edward H. Spicer continued studies among the Yaqui, interrupted by the war, and also worked on a community study of Potam, Sonara. B. W. Aginsky, director of the Social Science Field Laboratory, reactivated summer research of the laboratory among the Pomo of California. The present problem concerns "Intercultural Relations of Indians and Whites."

Gordon Brown did preliminary work on a research project which he will direct on diet, food habits, and allied sociological problems among the Crees of northern Ontario. The project is being handled by an inter-university committee and is financed jointly by the Dominion Government and the Canadian Life Insurance Officers' Association. Work among North American Indians has by no means decreased and numerous elaborate projects are in the planning stage.

FIELD WORK IN ARCHAEOLOGY

The major single activity in archaeology was performed by the Committee for the Recovery of Archaeological Remains of the American Anthropological Association. Frederick Johnson of this committee, after working with officials of the National Park Service, the Bureau of Reclamation, and the Smithsonian Institution, testified before the Senate Committee on Appropriations and was instrumental in the restoration of funds previously cut from the Missouri Basin appropriation by the House of Representatives. This and other appropriations later passed the Senate so that work started in 1946 in survey and excavation of areas to be flooded was continued.

Field projects in archaeology were numerous and were limited as usual to the Americas. Excavations in other parts of the world remain largely in the hands of classical archaeologists or of local men. Ties between archaeologists in the classical and anthropological traditions in this country have been strengthened during recent years and this trend continued in 1947. The Syrian Expedition of the Oriental Institute, University of Chicago, began a field season in the Near East with an eye toward establishing early village sites of the Syrian coastal strip. The purpose of the expedition is to add to our knowledge of the beginnings of settled, agricultural economies, and it serves to emphasize the similarity of problems now interesting both anthropologists and classical archaeologists.

The Department of Anthropology of the University of Arizona and the Arizona State Museum jointly inaugurated a long-range archaeological study at Point of Pines in the eastern part of the San Carlos Indian Reservation. An archaeological field school was established in connection with this work, and students from Columbia University participated in the first field session. Twenty-five students will eventually be accommodated. The school is directed by Emil W. Haury and E. B. Sayles. The Museum of New Mexico also had a large group in the field excavating prehistoric Indian sites under the leadership of Paul S. Martin. The Southwest Museum, with the cooperation of kindred southern California museums, organized the "Southern California Archaeological Survey Association" for mapping, recording data about, and assembling representative collections from sites between the Pacific Coast and the Colorado River, between Bakersfield and Lower California. R. F. Heizer of the University of California, Berkeley, led a graduate student trip in a series of archaeological investigations in California. One of these is to be continued and completed with the collaboration of the Department of Anthropology of the University of California at Los Angeles. L. S. Cressman started work on the Klamath Indian Reservation as a further step in the investigation of Oregon prehistory. The program will continue for at least three more years.

The Division of Historical Research, Carnegie Institution, under A. V. Kidder, carried on excavations in the western Guatemalan highlands and on the Pacific slope of Guatemala. A party at work at the ruins of Bonampak in Chiapas made a startling discovery of Old Empire Maya wall-paintings found in unusually good preservation. D. F. R. de la Borbolla, M. Covarrubias, and H. de Terra, working on a Viking Fund project in Mexico, have likewise made striking finds of apparently early date which may change present ideas of the archaic cultures.

Numerous other individuals and groups were in the field doing archaeological work. These may be conveniently located in the yearly survey made by *American Antiquity* and need not be repeated in detail here.

ORGANIZATION, MEETINGS, ETC.

The first post-war meeting of the 28th Congress of Americanists was held in Paris, Aug. 24-31. The International Congress of Anthropology and Ethnology scheduled for Prague in August was cancelled. An International Folklore Congress met in Paris July 12-13, and the International African Institute sponsored a conference on African Anthropological and Linguistic Research in London July 2-4. An International Institute of Archaeo-culture (Institut International d'Archeocivilisation) was founded in Paris April 16. J. M. Carriére, president of the American Folklore Society, is a member of the Interim Committee.

The American Anthropological Association held its annual meeting Dec. 28-30 in Albuquerque, N. M. Ruth Benedict gave the Presidential address emphasizing the place of the methods of the humanities in anthropological research, and the President *pro tem,* Clyde Kluckhohn, commented. Robert H. Lowie was awarded the Viking medal and annual prize of $1,000. Two new branches, a Hawaiian and a Western Branch were added to the Association. The Central States Branch and the Society for American Archaeology held a joint meeting at the University of Michigan May 16-17. The American Association for the Advancement of Science, Section H (anthropology), held its largest meeting of many years in connection with the 114th meeting of the Association in Chicago Dec. 27-31. Joint sessions were held with the Linguistic Society of America and the Society for Child Development. The Linguistic Society of America held a summer meeting at the University of Michigan Aug. 1-2 and its annual meeting at Yale in December. The Archaeological Institute of America also met in New Haven Dec. 29-31.

The Linguistic Circle of New York held monthly meetings as did many local groups. The Chaco Canyon Conference met July 28-30, and the Third Conference on Iroquois Research met at Alleghany State Park, New York, Oct. 24-26. The American Folklore Society met with the Society of Modern Languages at Detroit during the Christmas holidays. The School of American Research, the Museum of New Mexico, and the Laboratory of Anthropology met Sept. 4-5 and effected the consolidation of the three institutions.

PUBLICATIONS

The American Ethnological Society explored the possibility of a new journal to be devoted to cross-disciplinary studies but the active members of the committee, Robert Merton, George Murdock, Talcott Parsons and Marian W. Smith, decided to suspend activity until the new journal *Human Relations* had demonstrated its coverage of the field. The Society also sponsored the first Student Conference in Anthropology in May at the American Museum of Natural History. The American Anthropological Association inaugurated a mimeographed *News Bulletin* which is sent to fellows of the Association. Plans are well underway for a *Handbook of Middle America* which will parallel the classic *Handbook of Indians of North America* and the more recent *Handbook of South America*. H. B. Collins, Jr., was made anthropological consultant and advisor for the *Encyclopedia of the Arctic* being edited by Vilahjalmar Stefansson. David Mandelbaum is editing a memorial volume in honor of the late Edward Sapir, and on Oct. 9, the ninety-fifth anniversary of the death of John Lloyd Stevens, a plaque was unveiled in his memory at Marble Cemetery in New York City. Stevens was one of the first great American anthropologists.

LINGUISTICS

Language study received great impetus during the war and now shows no sign of abating. Extensive language programs are integrated with most of the area studies mentioned above; the innovation of using informants in teaching modern languages has now become firmly established; and personnel trained in various Asian and Near East languages has increased. Indiana University inaugurated a comprehensive East European program under the direction of Carl Voegelin in the study of the Finno-Ugric languages, and Thomas A. Sebeok, who is connected with the program, did research in Finno-Ugrics in Europe as a fellow of the American Scandinavian Foundation. Bjorn Collinder of Upsala, Sweden, was visiting scholar at Indiana for 1947-1948 as part of this program.

Special studies emphasized again the two major interests of linguists in language as (1) a formal and discrete phenomenon and (2) one aspect of total human activity. The Linguistic Society of America and Section H of the American Association for the Advancement of Science gave a joint program on Linguistics and Culture organized by Charles Hockett. The University of Oklahoma announced a new program of undergraduate and graduate courses, leading to the M. A. degree in linguistics, under the direction of George L. Trager. Gladys Reichard was on sabbatical leave the latter part of the year and devoted her time to her long-time study of Navaho. Morris Swadesh continued, as Guggenheim fellow, his study of the language and culture of the Nootka of Vancouver Island, Canada. Non-experts will find a useful illustration of joint linguistic and cultural material in Clyde Kluckhohn's book on the Navaho published by the Harvard Press.

PHYSICAL ANTHROPOLOGY

The second *Yearbook of Physical Anthropology*, published by the Viking Fund and distributed with the *American Journal of Physical Anthropology*, contains a survey of the year's literature in this field.

The year witnessed increased activity in two directions: toward detailed anatomical studies which throw light on general problems and which, therefore, tend to bring anatomists and physical anthropologists together; and toward more interest on the part of general anthropologists in the special field of fossil man. The last few years have seen important finds in this field, and several significant hypotheses have also been advanced. Perhaps the most far-reaching of these has been Franz Weidenreich's reconstructions of *gigantopithecus*. This hypothecated evolutionary form was the subject of extensive criticism at both of the major anthropological meetings during the year. Both Wilson D. Wallis in his presidential address at the dinner of Section H of the American Association for the Advancement of Science, and Verne F. Ray in a paper before the general session of the American Anthropological Association, questioned the validity of the hypothesis as posited. Quite apart from the pros and cons of the case, nothing in recent years has served more heavily to underscore the essential unity of anthropology in this country than these criticisms of a physical anthropologist by persons often identified with purely social anthropology. Despite differences of subject matter in the branches of anthropology, the aims and methods of the science remain essentially the same.

Scientifically sound, and non-racist, materials on racial classifications and race relations continued to be emphasized in all teaching, yet new research projects in this field were apparently few. The University of Chicago created a committee on a five-year program of education, training, and research in race relations, directed by Louis Wirth. Otto Klineberg returned from two years in Brazil where he made a special study of race relations. Margaret Wyant worked with a Chinese informant from Hawaii on the same subject and extended her study into an appraisal of the general field. But the main development has been into what is generally called intercultural study. Intercultural work, with special emphasis upon race relations, is widely expanded today through the agency of various social work groups and of teaching training groups. The basic facts of racial equality are known and now need mainly a wide and accurate dissemination.

CULTURE AND HUMAN RIGHTS

Cultural differences between national and regional groups are fully as well documented as racial equality. They are equally important to world affairs, and the position of cultural relativism is being actively espoused by many anthropologists. A "Statement on Human Rights" reflecting this position was drawn up by Melville Herskovits for the Executive Board of the American Anthropological Association and submitted to the commission on Human Rights, United Nations. The statement was also published in the *American Anthropologist.* Criticism of ethnocentric value judgments and behavior continues strong in anthropological thinking. Standards devised for general application in the world of today must constantly consider this factor. There is great danger that well-meaning but ethnocentric leaders may demand useless, even destructive, social changes in the name of conformity, and the facts concerning today's tremendous, and legitimate, cultural variation therefore need as full a dissemination as do the facts of basic racial equality.

On the other hand, anthropologists also raise the possibility of the existence of cross-cultural values. "Live and let live" must be the practical answer to present problems, and such a position is scientifically valid. Certainly most general programs for world peace are conceived with belief in one way of life uppermost and are, consequently, both scientifically and practically unsound. Yet the attention of some is now turning toward the eventual possibility of establishing valid world programs. The need for such programs is easy to recognize but difficult to realize. Interest in the theory of culture was demonstrated by a number of articles in 1947; discussions at meetings revolved around theory; and knowledge of local differentiation in Asia, Europe, and the Americas is accumulating. There is every indication that, during the next decade, anthropology will turn more and more of its research energies toward an evaluation of cultural relativism and cultural differentiation.

PERIODICAL PUBLICATIONS

American Anthropologist
450 Ahnaip St., Menasha, Wis.
American Journal of Physical Anthropology
36th Street and Woodland Ave., Philadelphia.
American Journal of Psychiatry
9 Rockefeller Plaza, New York City.
American Journal of Psychology
Cornell University, Ithaca, N. Y.
American Journal of Sociology
5750 Ellis Ave., Chicago.
American Political Science Review
Northwestern University, Evanston, Ill.
American Scientist
Yale University, New Haven, Conn.
International Journal of Ethics
5750 Ellis Ave., Chicago.
Journal of Abnormal and Social Psychology
374 Broadway, Albany, N. Y.
Journal of Comparative Psychology
Mount Royal and Guilford Aves., Baltimore, Md.
Journal of Educational Psychology
10 East Centre St., Baltimore, Md.
Journal of Educational Sociology
32 Washington Place, New York City.
Journal of Experimental Psychology
1822 Sherman Ave., Evanston, Ill.
Journal of General Psychology
Commercial St., Provincetown, Mass.
Journal of Philosophy
515 West 116th Street, New York City.
Journal of Social Psychology
Commercial St., Provincetown, Mass.
Mental Hygiene
State Office Building, Albany, N. Y.
Philosophical Review
55 Fifth Ave., New York City.
Psychoanalytic Review
70 Pine Street, New York City.
Psychological Review
1822 Sherman Ave., Evanston, Ill.
Science
Smithsonian Institution Building, Washington, D. C.
Scientific Monthly
Smithsonian Institution Building, Washington, D. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE, 3457 Walnut St., Philadelphia, Pa.
AMERICAN ANTHROPOLOGICAL ASSOCIATION, American Museum of Natural History, New York City.
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, Smithsonian Institution Building, Washington, D. C.
AMERICAN ECONOMIC ASSOCIATION, Northwestern University, Evanston, Ill.
AMERICAN ETHNOLOGICAL SOCIETY, Columbia University, New York City.
AMERICAN GENETIC ASSN., 1507 M St., N.W., Washington, D. C.
AMERICAN PHILOSOPHICAL SOCIETY, 104 S. 5th St., Philadelphia, Pa.
AMERICAN POLITICAL SCIENCE ASSN., 105 Harris Hall, Northwestern University of Michigan, Ann Arbor.
AMERICAN PSYCHIATRIC ASSN., 9 Rockefeller Plaza, New York City.
AMERICAN PSYCHOLOGICAL ASSN., University of Michigan, Ann Arbor.
AMERICAN PSYCHOPATHOLOGICAL ASSN., 520 Commonwealth Ave., Boston.
AMERICAN SOCIETY FOR PSYCHICAL RESEARCH, 40 E. 34th St., New York City.
AMERICAN SOCIOLOGICAL SOCIETY, U. S. Dept. of Agriculture, Washington, D. C.

NATIONAL COMMITTEE FOR MENTAL HYGIENE, 1790 Broadway, New York City.

NATIONAL INSTITUTE OF SOCIAL SCIENCES, 271 Madison Ave., New York City.

PSYCHOLOGICAL CORPORATION, 522 Fifth Ave., New York City.

SOCIETY FOR AMERICAN ARCHAEOLOGY, Illinois State Museum, Springfield, Ill.

PART SEVEN
THE HUMANITIES

DIVISION XXV

LITERATURE AND LANGUAGE

FICTION

By Amy Loveman

Associate Editor, *Saturday Review of Literature*

POST-WAR FICTIONAL PATTERN

By 1920, two years after the end of the First World War, Sinclair Lewis had published *Main Street* (Harcourt, Brace) and Scott Fitzgerald *This Side of Paradise* (Scribner), and American fiction had started to blaze a trail which led, on the one hand, to the era of disillusionment with the United States and, on the other, to the "new freedom" for the younger generation. For the first time in its history, literature in this country cut entirely loose from the optimism and complacency which had marked its general course and took on an urgency and heat which, for the time being, rendered pallid all that was being produced in the traditional vein. Now, two years after the end of the Second World War, fiction has earnestness but not fire, a sense of responsibility without the dynamic quality that makes it an impulsive force, discontent, perhaps, without crusading zeal.

It was inevitable, of course, that the pattern should alter with the march of events. The generation that was young in the twenties tore the veil that hid the cankers of their society from before the eyes of their countrymen and what they did then insured that their sons should not suffer the same shattering of the American dream as had they. And their struggle against the taboos, the conventions, and the hypocrisies of Victorian culture led to a disregard of established codes of behavior which gave literature license to deal with topics long under the ban. The young generation of today, heirs of their fathers' victories and children of depression, wear no blinkers and have their freedom, but they lack one thing their fathers had, the, alas unwarranted, confidence that war had made the world safe for democracy and the passionate determination to build a world in which war should not again be possible on a large scale. The writers of the present have come out of the recent struggle, like all their fellows, fearful, confused, appalled by the problems and the antagonisms of peace. They have no tranquillity in which to recollect emotion, which may, perhaps to an extent, account for the fact that they are producing no books of lasting consequence. The fiction of 1947, however, if not striking, earnest, and sincere, is concerned with matters of social import, serious in its attack upon the ills that beset the body politic.

THE RACIAL ISSUE

The problem of race prejudice, forced upon the attention of the world by the Nazi persecutions, has been of paramount importance. Anti-semitism, especially, has come in for discussion, with a book like Laura Hobson's *Gentleman's Agreement* (Simon & Schuster) unexpectedly topping the best-seller lists and winning a second enormous public in its motion picture version. Mrs. Hobson attacks not the ignorant or admittedly biased anti-semite but the intelligent, well-to-do individual who regards himself as a liberal and free from prejudice and who yet, by condoning anti-semitism among his associates, is lending countenance to its continuance. Wallace Stegner, in his novelette *Second Growth* (Houghton Mifflin), a tale playing in a dull New Hampshire town where the presence of an ardent young Jewish couple upsets summer residents and natives alike, Norman Katkov's affecting *Eagle at My Eyes* (Doubleday), Meyer Levin's *My Father's House* (Viking), which carries the reader over to Palestine, all deal with the theme of anti-semitism.

The problem of the Negro's relationship to the white community has also occupied many of the novelists. Opinion has varied widely as to the validity of Sinclair Lewis' thesis in *Kingsblood Royal* (Random House), a tale whose hero, a successful Midwestern lawyer, having discovered that he has a strain of Negro blood in his veins, throws overboard success and the esteem of the white community to become part of the Negro world, and though the book has been widely read it has been vigorously attacked by critics professional and otherwise. Like Lewis's book dealing with the problem of the Negro and the prejudice against him are Chester Hines' *Lonely Crusade* (Knopf), concerned not only with racial prejudice but also with sex and politics, and Worth Tuttle Hadden's *The Other Room* (Crown).

Significantly enough, though Willard Motley is himself a Negro, no inkling of the fact enters into his powerful *Knock on Any Door* (Appleton Century). Here is one of the most effective social documents of recent fiction, a study of juvenile delinquency, crime, and reform schools which can not but recall, in its passionate intensity, though there is no resemblance between the art of the two, the Dickens of *Nicholas Nickleby* and *Oliver Twist*. It is particularly heartening to see Motley writing, not as a Negro novelist, but merely as an American writer. Another social document, highly charged with grimness, is Natalie Anderson Scott's *The Story of Mrs. Murphy* (Dutton), the story of a young man, well-intentioned enough but too weak to resist his fondness for drink, and of the respectable Irish family on whom he brings sorrow and disgrace. Miss Scott writes with remarkable knowledge of the milieu she describes and with compassion, despite her relentless picture of the degradation to which her hero descends. A novel, loudly hailed by an intellectual few, Malcolm Lowry's *Under the Volcano* (Reynal & Hitchcock), is again a portrayal of an alcoholic but this time one developing with subtle strokes the sickness and agony of soul of a small group gathered together under the Mexican sun. A book likely to be caviar to the general, it has been pronounced by some of the critics the finest novel of the year.

NOVELS SHADOWED BY WAR

The war, though as conflict it played a small part in the fiction of 1947, yet was an important activating agent in many of the novels. This was the case in David Davidson's *The Steeper Cliff* (Random House), which took for hero an army lieutenant and which was in substance a study of cowardice; Robert McLaughlin's *The Side of the Angels* (Knopf), balancing the good and the bad in the United States army at war, and, incidentally, introducing the Jewish question; Lionel Shapiro's *The Sealed Verdict* (Doubleday), a highly interesting book built about the trials in Germany and depicting the struggles of mind and conscience of a young American officer who, having secured a verdict against a Nazi offender, began to doubt the correctness of the evidence on which it was based; *The Gallery* (Harper), by John Horne Burns, with G.I.'s for personnel and Naples for scene; the vivid and revealing *Tales of the South Pacific* (Macmillan), by James Michener; *The Victory* (Random House), by Vincent McHugh, and *Command Decision* (Little, Brown), by William Wister Haines, a story of air strife over Germany. Not of the war, but of the unsettled conditions born of the war, is Maritta Wolff's *About Lyddy Thomas* (Random House), with its depiction of the smash-up of a middle-class marriage and the general confusion and turmoil of mind of a group of factory workers in a Midwestern town. Miss Wolff's book is a picture of how youth lives, as is also C. W. Grafton's *My Name Is Christopher Nagel* (Rinehart).

THE HISTORICAL NOVEL

The historical novel still flourishes in the country as the green bay tree. Such tales range all the way in time from Vardis Fisher's *Adam and the Serpent* (Vanguard), the latest novel in the series designed to show the march of mankind, which takes for its subject the struggle for supremacy between men and women at the dawn of humanity, and Konrad Bercovici's *The Exodus* (Beechhurst), presenting a legend based on the Biblical story of Moses and the exodus of the Jews from Egypt, to Berry Fleming's *The Lightwood Tree* (Harcourt, Brace) which presents concurrently a satire on political conditions in Georgia today and scenes from the past history of the state. From the point of view of popularity the most successful historical novel of the year was Thomas Costain's *The Moneyman* (Doubleday), a story of the period of Charles VII of France, with the merchant and financier, Jacques Coeur, for hero and the King's mistress, Agnes Sorel, playing a part in the plot. Highly popular also was Samuel Shellabarger's *Prince of Foxes* (Little, Brown) in which Caesar Borgia moves against a carefully developed background of Renaissance politics. Borgia appears again in Maurice Samuel's *The Web of Lucifer* (Knopf), a vivid and realistic picture of a man and a period. In *The Heretics* (Harcourt, Brace), Humphrey Slater takes for his theme the persistence of bigotry and prejudice, playing out a double thread in a story of the Children's Crusade and the Spanish Civil War.

Lion Feuchtwanger now an American citizen, has become American also by his choice of subject in *Proud Destiny* (Viking), a novel that comes close to history in the authenticity of its portrayal of Franklin and Beaumarchais and the background of Paris and Versailles. While this book has the color of fiction, it has the ring of truth. The Revolutionary period, this time with the events placed in America and not abroad, is also the subject of Edward Stanley's excellent *Thomas Forty* (Duell Sloan & Pearce), a tale of Westchester and of Tory activity there, stretching in time from Valley Forge to the end of the war. The American West and border settlement come in for vivid treatment in A. B. Guthrie's *The Big Sky* (Sloane), a lusty, vigorous, and truthful portrayal of frontier life in Kentucky and Montana in the mid-nineteenth century, full of fighting and Indians and rough-and-tumble experience, and in *The Harp of a Thousand Strings* (Morrow), by H. L. Davis, which sweeps from the Western prairies to the France of the Revolution and the Terror. In *Blood Brother* (Duell, Sloan & Pearce), Elliott Arnold spins a vivid tale of Arizona and the Indian troubles after the Mexican War, one calculated to stir Americans once again to shame at the treatment which the red man has met at their hands, while in *Paquita* (Putnam), Robert Raynolds mingles description of the Mexican revolt of the early nineteenth century with romance and politics. The Civil War, of course, continues to maintain its popularity as a subject for the novelists, with Ben Ames Williams's long *House Divided* (Houghton Mifflin) as the outstanding example of the category.

NOVELS IN LIGHT VEIN

Man can not live by bread alone and even in a world of confusion and storm there must be novels that afford escape. And such novels there will always be for the instinct for entertainment is as deep-rooted in the human breast as the desire to learn or to play a part in the affairs of men. There was a spate of tales during the year which, while they added little to permanent literature, added much to the enjoyment of the reader who was looking for an amusing yarn or a story of adventure or a nostalgic romance. Among these, several were novels of manners, like Louise Field Copper's astringent *Summer Stranger* (Harper), with its biting portrayal of a New England summer resort into which exclusive precinct a "poor relation," a girl of seventeen, had found her way; Aline Bernstein's *Miss Condon* (Knopf), full of the details of furnishing and food which give such sense of substance and permanence to the well-to-do homes of the turn of the century; Mannix Walker's amusing and extravagant tale of paying guests who retrieved the fortunes of a decaying Southern family, *The Lonely Carrot* (Dodd, Mead); Sterling North's idyll of an Indiana boyhood in 1903, *So Dear to the Heart* (Doubleday); George Milburn's *Flannigan's Folly* (Whittlesey), in which a returned veteran worked his way into sustenance and marriage; Gerald Warner Braces' *The Garretson Chronicle* (Norton), a story of a New England family which is an excellent portrayal of contrasting generations and ways, Marcia Davenport's *East Side, West Side* (Scribner), and Vincent Sheean's *A Certain Rich Man* (Random House), both of these latter depicting a New York of wealth and luxury and attempting as offset to show how "the other half" lives. There were tales of adventure like *Unseen Harbor* (Lippincott), by Frank Laskier, with its narratives of seamen ashore and afloat, Thomas Duncan's *Gus the Great* (Lippincott), not a story of adventure in the usual sense but still a picaresque tale full of stir and bustle, lively incidents, and colorful personalities, and *Ledger of Lying Dog* (Doubleday), by William George Weekly, a sort of cross between *Robinson Crusoe* and *Treasure Island*.

THE AMERICAN SCENE

The American scene, in less polished aspects than those presented in the novels of such writers as Marcia Davenport and Vincent Sheean, has engaged the interest of a number of novelists. It is a tough picture which Budd Schulberg draws in *The Harder They Fall* (Random House), an exposure of the fight racket, and a frankly ugly one which John Steinbeck presents in the much-discussed *The Wayward Bus* (Viking), the story of a group of persons marooned for the space of a storm in a bus stalled on a mountain road and reverting under the extraordinary conditions to the rawest manifestations of human nature. Satire, suave but unsparing, makes Herman Wouk's *Aurora Dawn* (Simon & Schuster) a pungent as well as entertaining depiction of high-pressure radio advertising, and satire, too, gives edge to Frederic Wakeman's caustic picture of a theatrical producer, *The Saxon Charm* (Rinehart). Politics are the target of Robert Rylee's *The Ring and the Cross* (Knopf) and Ben Appel's story set in post-Rooseveltian Washington, *But Not Yet the Slain* (Wyn). Upton Sinclair's foray into international affairs now carries his hero Lanny Budd into an eighth volume and covers Algeria, Sahara, and Germany. *Presidential Mission* (Viking), though it is set abroad, still has its bearings on the American scene.

THE PSYCHOLOGICAL NOVEL

One of the most notable trends of recent fiction has been its interest in the psychological and psychoanalytical. Undoubtedly the impulsion to this sort of tale was given by the return of the soldiers and the problems subtended by their readjustment to normal life and of those they had left behind them to themselves. Though the veteran has dropped out of sight to a considerable extent, the habit of interest in mental attitudes and reactions goes on in such novels as Nancy Wilson Ross's *The Left Hand Is the Dreamer* (Sloane), a delicately developed story of a fortunately placed young matron plunged into unwonted spiritual turmoil, Henry Morton Robinson's *The Great Snow* (Simon & Schuster), with its projection of the emotional stresses of a family group forced into isolation by a blizzard; *The Mountain Lion* (Harcourt, Brace), by Jean Stafford, a touching and tragic portrayal of a sister-brother relationship; Hilda Lewis' *Strange Story,* Hannah Lees's *The Dark Device* (Harper), and Margaret Millar's *Experiment in Springtime* (Random House). Of fantasy and the symbolic there has been comparatively little though such a book as John Steinbeck's *The Pearl* (Viking) comes close to falling in the latter category, and Robert Nathan's graceful *Mr. Whittle and the Morning Star* (Knopf), with its story of middle age yielding briefly to the glamor of youth, and Conrad Richter's *Always Young and Fair* (Knopf), the portrayal of an elderly woman's sudden resentment against her dead lover, always young and fair in memory, in mourning whom she has let life pass her by, could almost be regarded as parables.

FICTION IN ENGLAND

The blight the war cast on creative writing in England still, to a considerable extent, prevails. Conditions in the British Isles remain so stringent, the deprivations are so great, and the hardships so many that it is small wonder British writers have not recovered their resilience. The profound weariness that holds the nation in its grip is reflected in a lack of originality and vivacity in its fiction. For the most part novels follow an established pre-war pattern, with obeisance, of course, to changed conditions, or still concern themselves with the war. Some of the most effective books of the year dealt with the conflict. Such are the two books by H. S. Bates, *The Cruise of the Breadwinner* (Little, Brown), a brief but moving story of one day during which the members of a Channel patrol run the gamut of dangers and emotions and look into the face of the enemy when they rescue a German pilot from the sea, and *The Purple Plains* (Little, Brown), set in distant Burma with an airman for hero. Such, too, are Nevil Shute's *The Chequer Board* (Morrow), stories of the dying in hospital, Michael Leigh's vividly realistic tale of guerilla fighting in Russia, *Comrade Forest* (Whittlesey), and Bruce Marshall's witty, entertaining, and scathing portrayal of British military government at work, *Vespers in Vienna* (Houghton Mifflin).

NOVELS BY FAMILIAR WRITERS

Angela Thirkell's *Peace Breaks Out* (Knopf), which might be regarded as a war story in reverse, continues the author's familiar vein of depiction of English county life, but the vein, alas, is beginning to run thin. Other well-known names appear among the novelists of 1947, none of them, however, represented by the author's best work, whether it be J. B. Priestley with *Jennie Villiers* (Harper), E. H. Young with *Chatterton Square* (Harcourt, Brace), Sheila Kaye-Smith with *The Lardners and the Laurelwoods* (Harper), T. H. White with *The Elephant and the Kangaroo* (Putnam), or Gerald Kersh with *Prelude to a Certain Midnight* (Doubleday). P. G. Wodehouse has emerged from his wartime eclipse with a new tale with old characters, *Full Moon,* and the first volume of what promises to be an important novel built on a careful study of the life of the poet, Robert Burns, *The Wind That Shakes the Barley* (Macmillan), has appeared from the pen of James Burke.

TALES OF SCOTLAND AND WALES

Perhaps the most outstanding of the British novels of the year is a tale not of England but of Scotland, the full-bodied story of a family of

Victorian days which rose to wealth and influence, *Red Plush* (Farrar & Straus), by Guy McCrone. There is excellent character drawing in the book, a nice sense of perspective, and a realistic recreation of a period now rendered distant by events. Two other tales of Scotland, *The Drinking Well* (Stewart), by Neil M. Gunn, and *Friends and Lovers* (Little, Brown), by Helen MacInnes, and a grim novel with its setting in Wales, *The Dark Daughters* (Doubleday), by Rhys Davies, deserve mention.

In neither Britain nor America was there any work during the year of large importance or promise of permanence. The fiction in both countries has been marked by sobriety and earnestness and an awareness of the hour, but in England especially the writing produces the impression that for the moment at least all passion is spent. In America, where there is greater virility perhaps, there is yet nothing of the dynamic energy which lent fire to the fiction of an earlier war generation. Both countries still await the emergence of a notable post-war fiction.

CONTINENTAL NOVELS IN ENGLISH TRANSLATION

Among foreign novels of the year to which was accorded considerable critical and general acclaim mention should be made of Jean-Paul Sartre's *The Age of Reason* (Knopf) and *The Reprieve* (Knopf), both of them grim pictures of a chaotic and demoralized France, Ernst Weichert's touching *The Girl and the Ferryman* (Pilot), Louis Aragon's impressive picture of Paris after the First World War with its characteristically French love story, *Aurelien* (Duell, Sloan & Pearce), Carlo Levi's *Christ Stopped at Eboli* (Farrar & Straus), the picture of an Italian hamlet remote, ingrown, and forsaken, C. F. Ramuz's quietly dramatic *When the Mountain Fell* (Pantheon), Arnold Zweig's *The Axe of Wandsbek* (Viking), and Roger Vercel's *Madman's Memory* (Random House).

POETRY

By A. M. Sullivan
Poet and Critic

POST-WAR DRAG ON POETRY

Poetry for 1947 is still in the doldrums of a post-war period. The affirmative work of a few of the newer poets is an indication of a shift of emphasis as the young men get a perspective of the events in which they are more than innocent bystanders.

REVOLT AGAINST THE VICTORIAN AND THE ROMANTICS

There have been three minor revolts among the poets in the past generation. In 1912-13, America witnessed a revolt against manners, a protest against the Victorian hangover, a refusal to carry on the moralistic and fustian verse of the period. It was a quarrel of technicians in verse-making. In 1922-23, the poets of disillusionment rallied around T. S. Eliot, whose poem, "The Wasteland," provided the negative background for their chorus of complaint. This was a challenge to romanticism, to chauvinism, and to the philosophy that states, "All's well that ends well." The romantics Alan Seeger, Rupert Brooke, and Joyce Kilmer had given testimony in blood and breath, but the newer poets, realists of the trenches, remembered the lost genius of Wilfrid Owen, Edward Thomas, and Francis Ledwidge on the battlefields, and turned against the old order. It was a revolt against tradition, and having flared bright with the light of Eliot, it faded with his refusal to be a leader.

The quarrel of the early thirties began in England around the audacious Auden, and the coterie which included

Stephen Spender, Louis MacNeice, Dylan Thomas, and others who borrowed their poetic devices from Gerard Manley Hopkins, and seized upon the economic and social ideas of Karl Marx as a substitute for God and the monarchy. They got no help from T. S. Eliot, who shifted his base spiritually and politically. Eliot, as much a technical innovator as ever, became an Anglican in religion and a monarchist in politics. The talented young English poets staged an impudent uprising against the standard-bearers of English poetry. The classical and romantic bards of the 19th century were given a rough combing in the critical analyses of the Auden group. It was a revolt against ideas, and it made its mark on current poetic trends. The quarrel of the poets had turned from the religious and moral to the social and political, and much of the debate consisted of verbal shadow-boxing.

Poetic turbulences are usually surface storms which do not disturb the depths of great esthetic principles. The young English poets soon found Marxian tenets indigestible and the Russian experiment a confusion of ideals and ideology. They also saw their poetry debauching itself into journalism, and their visions deluded by false beacons. There are still many poets in America and England attempting to carry the banners of social reform, but most of them are in a dead-end street, and are finding it hard to back out with good grace.

Not much great, or even good, poetry came out of the Second World War, and no new poet of first magnitude has made his appearance since the war's end. Perhaps we are in the dead calm that presages a storm. There is some indication of poetic excitement in the vitality and original statements of a few poets. However this may be, the more or less accepted poets, men over 45, have given us the best verse during 1947.

ROBERT FROST

Robert Frost carries on his traditional poetry in *Steeple Bush,* which reveals that the same sensitive, querulous, witty mind is at work. In the second of his *Masques,* Frost is far from successful, playing jackanapes with the Biblical and Christian tradition. He pokes fun at, and torments the Christian concepts—not necessarily as an unbeliever, but with the candor of a privileged member of the family. Frost in the "Masque" adds nothing to his stature as a poet, and gains little as playwright, or philosopher.

HILLYER, BENÉT AND OTHERS

Robert Hillyer, Pulitzer winner in 1934, maintains the steady flow of high-level lyricism in *Poems for Music.* William Rose Benét's *The Stairway of Surprise* gathers up the loose strings of his poetic efforts, and gives the public his best book in more than a decade. Rolfe Humphries' new and carefully chiselled poems in *Forbid Thy Ravens* holds a high level of original lyric statement, although it is more mannered than his previous volume, *The Summer Landscape,* and occasionally suffers from the author's intrusive preachments. Witter Bynner's *Take Away the Darkness* maintains the Bynner style of brevity and philosophic wit, and contains several poems which hold his standard high in the field of compact, philosophic writing. Theodore Maynard's *Selected Poems* include several new and crystalline lyrics which add to his stature as a singer whose voice will be heard with pleasure in any year.

WOMEN POETS

Among the women, Louise Townsend Nicholl offers us a distillation of several years of poetic refining in her small book, *Life Is the Flesh.* Tight and solid as John Donne is in putting words together, Miss Nicholl makes them ring with a clear resonance. Laura Benét's *Is Morning Sure?* is a collection of singable poems in which the poet's sympathy for her fellow man is always apparent. *Poems,* by Joan Murray, is a posthumous volume by a young girl whose loss makes us think of the potentials of Chatterton and Keats. Her death also reminds us of the young Englishman, Sidney Keyes, who was killed in the African campaign before the American invasion. Keyes, at 21, had much of the strength that marked the poetry of Wilfrid Owen, who died on the Sambre canal in 1918, near the end of the First World War. His collected poems were issued during the year with a preface by Herbert Read.

GREENBERG AND STEVENS

The name of Samuel Greenberg has always been allied to that of Hart Crane. Greenberg, whose collected poems were brought out in 1947 with an introduction by Allen Tate, shows a brilliance in metaphor that may have influenced Crane. Hart Crane's Brooklyn Bridge images are arresting in their originality and power, and the degree to which he was influenced by Greenberg is a matter of dispute. Greenberg died of tuberculosis in 1917, a victim of ghetto life at 23.

Wallace Stevens, in *Transport to Summer,* continues his long retreat to the recesses of the intellect. It tests the loyalty of the readers who love *Peter Quince at the Clavier* to follow Stevens in his mental excursions as he pares philosophic ideas to an invisible fineness. Stevens, as a thinker, is slowly crowding out the witty poet who wrote *Thirteen Ways of Looking at a Blackbird,* a superb example of poetic imagery.

AUDEN AND THE INTELLECTUALS

Auden got a mixed reception from the critics for his drawing room conversation piece, *The Age of Anxiety,* which is described as a "baroque eclogue." Auden is a scintillating technician in verse-making, and makes any idea sound interesting through his mastery of the poetic devices. He is the most energetic force in modern poetry, a catalyst of poetic action, but we must delay appraisal of what he says until the excitement of how he says it wears off.

Among the other intellectual poets are Selden Rodman, a technical innovator with the courage to be different at the expense of the reader's sympathy. *The Amazing Years* considers our time in a journal of a sharp-witted reporter, but it is hard going at times. Oscar Williams' *Selected Poems* reveal the talents of a visual mind, reporting the world about him in a rhetoric which crackles with verbal fireworks of metaphor piled upon metaphor. Karl Shapiro, who gave high promise a few years ago and won the Pulitzer Award, is encountering difficulty in finding themes that go beyond devices for his clever wit, and technical qualifications. His *Trial of a Poet,* a volume of verse comprising other poems than the title piece, considers the plight of Ezra Pound in relation to the responsibility of an artist in wartime. This work followed his *Essay on Rime,* an interesting *tour de force* in which Shapiro carries on the tradition of Horace and Pope as a critic employing the media of verse.

The younger intellectual poets are in the main excellent craftsmen, but they are still searching for theses or facets of themes that fit in with their mental attitude. They have indignation against the stupidity of their elders, barbed speech with points keen for the wounding, but they are not quite willing to continue in a pose of negation. Some regain faith, as Eliot and Auden, but once irony has taken command it becomes increasingly difficult to maintain an affirmative stance in a world that threatens itself with ruin.

THE YOUNGER POETS

Among the younger poets of talent who have curry-combed the hides of a scabrous world are J. F. Nims in his *The Iron Pastoral,* a work of considerable merit; Dunstan Thompson in *Lament for the Sleepwalkers,* poems of considerable vitality and drum-beating, and Howard Nemerov, whose book *The Image and the Law* has the virtues and the faults of a voice dominated by the mind. Hugh Chisolm, in "The Prodigal Never Returns," has a gift for crisp statement and fresh rhetoric, but he has no solace for the heart of man. Weldon Kees, whose work has appeared in *Poetry,* a magazine of verse, offers in "The Fall of the Magicians," verse superb in its device, disturbing in its total effect.

Thomas Merton, a young Trappist monk, is finding favor, not only among lovers of poetry of a spiritual impulse, but also among the poets who are indifferent to religious concepts. Merton's book, *Figures for an Apocalypse,* introduces a dazzling use of metaphor, but he has not yet produced any poetic sequence of major proportions or sustained poem on a central theme. Some critics look to Merton as the spiritual promise of a poet of the stature of Francis Thompson, or Gerard Manley Hopkins. Sister Madeleva's *Collected Poems* gathers together the familiar poems with a few new lyrics, and makes us regret that her religious duties limit her working hours at poetry to a few hours a year.

Frederic Prokosch, in his *Chosen Poems,* enables us to get a three-dimensional view of his stature as a poet. Prokosch is a musical sedative compared to the keen-toothed and often cacophonous intellectuals. His poetry, in its best sense, is vegetable, and of lush growth, but it is rewarding, especially after reading the stormy lines of angry lads or the conundrums of men in ivory towers.

NEGRO POETS

The standard Negro poets are represented in a book of the late Countee Cullen, whose lyric reputation gains with the publication of *In These Islands.* Langston Hughes, more socially-minded, is less effective, in *Fields of Wonder.* Owen Dodson, a new Negro voice, makes a dramatic use of response and antiphon in his modern chorales. His book *Powerful Long Ladder* is extremely race-conscious to the injury of an excellent talent.

LIGHT AND SATIRIC VERSE

In the field of light and satiric verse the good news of a book by Samuel Hoffenstein was blighted by word of his death just a few days prior to publication. There were nearly 20 years between the successful Hoffenstein collection, *Poems in Praise of Practically Nothing* and *Pencil in the Air.* The second book has a gentler, more philosophic humor than the good-natured but nonetheless rough-edged jibes of the younger Hoffenstein (before Hollywood absorbed his time and talent).

It is not easy to classify Melville Cane's cameo poems published under the title of *A Wider Arc.* Cane is a wit but he is also a sensitive poet and a careful craftsman. One misses the happy humor of Arthur Guiterman in the current crop of light verse. Nor is there any worthy collection of the *vers de société* for the year, since none of the standard light verse writers, Phyllis McGinley, David McCord, or Morris Bishop, have reported recent volumes. The number of protesting, serious young poets, is large if for the most part undistinguished. There is no counter-irritant among them, nor comic relief, and one might welcome a gentle fun-maker in the tradition of Austin Dobson or Andrew Lang. The maverick humorist, Ogden Nash, is still alone in his chosen patterns, with others unwilling or unable to follow his haphazard sentence structure and rhythms.

POETRY ANTHOLOGIES

Every year produces a new group of poetry anthologies, some specialized, some general, and a few inclusive. A good anthology makes money for its editors and publisher; it seldom makes money for the poet beyond the first fee which is grudgingly paid. In a large anthology, these fees can aggregate into a sizeable investment, and the lack of a fee often weakens the quality standards of the anthology. Among the recent anthologies reflecting careful research and editing are William Williamson's *The Eternal Sea,* Kathleen Hoagland's *1000 Years of Irish Poetry,* and Sister Marie Thérèse's *I Sing of a Maiden,* a collection of poems of the Blessed Virgin by Catholics, Protestants, and a variety of unbelievers. It is impossible to list, or even comment briefly, on the numerous anthologies of dogs, cats, trees, birds, and special occasions which constantly pour from the press, many of which are money-making pot-boilers of indifferent literary standards.

CONCLUSION

Despite the fact that we live in the most poetic epoch in the world's history, the poet finds it difficult to command an audience against the competition of the other art forms and the distractions of our current dangers and amusements. Too much of the poet's energy is wasted in private conversation with fellow poets. He speaks for the elect who have learned the special vocabulary of the intellectual, talking, as a critic said, "out of the side of his mouth." Poetry is flourishing for the most part without benefit of the printing press, but the poets are not doing so well. There is always hope, however, for an affirmative voice.

HISTORY

By Richard W. Leopold
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CONTINUING EFFECT OF THE WAR

During 1947, the blighting effect of the war continued to be felt in the field of History. Although qualitatively and quantitatively the year registered a slight gain over its predecessor, the number of worthwhile books remained below the pre-war figure. Until research begun before 1941 can be completed, until the first generation of post-war dissertations are printed, until the teaching load in crowded colleges can be lightened, until students can again work freely in foreign repositories, and until publishers reach some solution for skyrocketing costs, it is unlikely that historical scholarship in America will resume its normal status. Not the least discouraging feature of the last 12 months has been the prohibitive prices that have been placed upon almost all serious works.

TOYNBEE AND NEVINS

One hopeful sign in a disappointing year was the spectacular sale of D. C. Somervell's abridgement of A. J. Toynbee's six-volume *A Study of History* (Oxford). It is a rare tribute to the American reading public that one Englishman's tightly-packed condensation of another Englishman's unfinished survey of the decay of civilizations should find so eager an audience. Published in March, the Somervell abridgement maintained second or third place in the non-fiction best-seller list from June to October, and as the year closed it ranked seventh.

Second only in importance to Toynbee's unexpected popularity was the appearance of the first installment of Allan Nevins, *Ordeal of the Union* (Scribner), a comprehensive narrative of the Civil War era. Projected on a canvas broader than that of Rhodes or von Holst and based upon a variety of sources unmatched by any previous writer, the two volumes (covering 1848-1857) are a convincing demonstration that history can be instructive, authoritative, exciting, and enjoyable.

OTHER TRENDS

Other trends of the year deserve brief mention. A new cooperative history of the South was begun; progress was made in a similar enterprise on American economic development; the twentieth century continued to claim attention; and the first war histories by trained scholars appeared. Rich source materials, such as the journals of Francis Parkman, the letters of Henry Adams, and the notebooks of Henry James, were published. A tendency to reprint was evidenced by several distinguished anthologies, two collections of travelers' accounts, a running narrative by contemporaries of the Civil War, and a condensation of Henry Adams' nine-volume history of the Jefferson and Madison administrations. The vogue for pictorial histories persisted. As in previous years, valuable additions to historical scholarship were made in the field of biography.

GENERAL WORKS

Few works of a general nature appeared in 1947. Emery Neff, *The Poetry of History* (Columbia) attempts to show how the spirit, form, and content of historical writing since Voltaire has been influenced by literature, science, and political events. J. B. Conant, *On Understanding Science* (Yale), is an important contribution to the intellectual history of the seventeenth and eighteenth centuries. The role played by the Dark Continent is outlined in *The World and Africa* (Viking) by W. E. B. DuBois; while a heroic theme is developed in *The Search for the North Pole* (Richard R. Smith) by N. M. Crouse. D. J. Grout, *A Short History of the Opera* (Columbia) is a scholarly, two-volume work; R. H. Shryock, *The Development of Modern Medicine* (Knopf) is an enlarged version of a useful survey first published in 1936.

WAR HISTORIES

During 1947, the torrent of hasty, undocumented war books began to give way to the products of trained scholars. Outstanding on the diplomatic side is W. L. Langer, *Our Vichy Gamble* (Knopf), a comprehensive and incisive narrative of our relations with the Pétain régime. Walter Millis, *This Is Pearl!* (Morrow), depends largely on Congressional hearings for the preliminaries of the Japanese attack. Although neither scholarly in research nor impartial in temper, *Pearl Harbor* (Devin-Adair) by George Morgenstern will interest future historians as the first revisionist interpretation. The key role of scientific warfare is underlined in J. C. Boyce, *New Weapons for Air Warfare* (Little, Brown) and in L. R. Thiesmeyer and J. E. Burchard, *Combat Scientists* (Little, Brown). Several government agencies, such as the Office of Price Administration and the War Production Board, compiled digests of their wartime activity.

The year also witnessed the launching of *The United States Army in World War II,* a series prepared by the Historical Section and treating administration, planning, and operations. The initial volume, *The Organization of Ground Forces* (Government Printing Office), is the work of three well-known historians, K. R. Greenfield, R. R. Palmer, and B. I. Wiley. Although the Navy is not sponsoring an official history, several scholarly productions based on its classified records were completed. *The Battle of the Atlantic, 1939-1943* (Little, Brown) and *Operations in North African Waters, 1942-1943* (Little, Brown) comprise the first installments of S. E. Morison's multivolume *History of United States Naval Operations in World War II.* The war's greatest sea engagement is seen through American eyes in C. V. Woodward, *The Battle for Leyte Gulf* (Macmillan) and through those of the enemy in J. A. Field, Jr., *The Japanese at Leyte Gulf* (Princeton). One phase of the administrative achievement is related in D. S. Ballantine, *U. S. Naval Logistics in the Second World War* (Princeton).

UNITED STATES HISTORY

Save for Nevins, there was no outstanding general work in 1947 on the history of the United States. A sensitive portrait of the American mind since 1896 is delineated in Lloyd Morris, *Postscript to Yesterday* (Random House). J. H. Franklin, *From Slavery to Freedom* (Knopf), is a well-balanced and temperate survey of the Negro since colonial days. J. E. Pollard, *The Presidents and the Press* (Macmillan) is useful but by no means definitive. Suggestive material is contained in H. P. Fairchild, *Race and Nationality as Factors in American Life* (Ronald) and in *The Study and Teaching of American History* (National Council for Social Studies) edited by R. E. Thursfield.

THE AMERICAN COLONIES

Two works of conspicuous merit on American colonial life were published in the last 12 months. L. B. Wright, *The Atlantic Frontier* (Knopf), traces the transplanting of European civilization in North America up to 1763. T. J. Wertenbaker, *The Puritan Oligarchy* (Scribner) is a fresh, penetrating though sometimes uneven account of Massachusetts Bay. Lesser studies for the years before independence include J. C. Wise, *The Mystery of Columbus* (Monticello); D. L. Rights, *The American Indian in North Carolina* (Duke); A. E. Smith, *Colonists in Bondage: White Servitude and Convict Labor in America, 1607-1776* (North Carolina); A. O. Porter, *County Government in Virginia* (Columbia); A. V. Goodman, *American Overture: Jewish Rights in Colonial Times* (Jewish Publication Society).

REGIONAL HISTORY

Regional history claimed several books of primary importance in 1947. E. M. Coulter, *The South during Reconstruction, 1865-1877* (Louisiana), is the first volume to appear in a new cooperative *History of the South.* F. B. Simkins, *The South, Old and New* (Knopf), is an authoritative yet entertaining history since 1820. The results of a decade's research are summarized in H. W. Odum, *The Way of the South* (Macmillan). Another region is explored in *The Great Northwest* (Knopf) by O. O. Winther. R. G. Cleland, *California in Our Time, 1900-1940* (Knopf), is a work of solid merit. Most widely read of all, however, was Bernard DeVoto's *Across the Wide Missouri* (Houghton, Mifflin), which describes with high literary skill and contemporary paintings the climax of the Rocky Mountain fur trade between 1832 and 1838.

Designed for popular consumption are Jay Monaghan, *The Overland Trail* (Bobbs-Merrill); R. K. Kincaid, *The Wilderness Road* (Bobbs-Merrill), and Townsend Scudder, *Concord: American Town* (Little, Brown). More specialized studies include T. C. Blegen, *Grass Roots History* (Minnesota); L. F. Brewster, *Summer Migrations and Resorts of South Carolina Low-Country Plantations* (Duke); Alexander McLeod, *Pigtails and Gold Dust* (Caxton); and C. F. McGlashan, *History of the Donner Party* (Stanford).

POLITICAL AND CONSTITUTIONAL HISTORY

Two books that add little to the subjects they treat are W. F. McCaleb, *The Conquest of the West* (Prentice-Hall), dealing with the years 1803-1848, and A. H. Bill, *Rehearsal for Conflict* (Knopf), retelling the story of the Mexican War. *American Communism* (Dutton) by James Oneal and G. A. Werner attempts to describe the origins and development of that party in the United States. K. C. MacKay, *The Progressive Movement of 1924* (Columbia), is a competent dissertation. Voting trends are examined in C. A. M. Ewing, *Congressional Elections, 1896-1944* (Oklahoma) and in E. E. Robinson, *They Voted for Roosevelt: the Presidential Vote, 1932-1944* (Stanford).

C. P. Curtis, Jr., *Lions under the Throne* (Houghton, Mifflin) is a stimulating but hardly novel analysis of legislation by the Supreme Court. Two books by eminent authorities are E. S. Corwin, *Total War and the Constitution* (Knopf) and W. E. Binkley, *President and Congress* (Knopf). A long-neglected problem of colonial administration is elucidated in E. S. Pomeroy, *The Territories of the United States, 1861-1890* (Pennsylvania). Minor studies in constitutional history include J. M. Jones, *Full Powers and Ratification* (Macmillan); M. R. Konvitz, *The Constitution and Civil Rights* (Columbia); R. K. Carr, *Federal Protection of Civil Rights* (Cornell); and E. K. Ware, *A Constitutional History of Georgia* (Columbia).

DIPLOMATIC HISTORY

As might be expected, most writings on American diplomatic history dealt with the recent past. J. C. Campbell, *The United States in World Affairs, 1945-1947* (Harper) maintains the high standard set by its predecessors before this annual summary by the Council on Foreign Relations was suspended in 1941. Three volumes in the "American Foreign Policy Library" combine in varying amounts history and current events. Dexter Perkins, *The United States and the Caribbean* (Harvard), provides the fullest historical background; but both V. M. Dean, *The United States and Russia* (Harvard) and E. A. Speiser, *The United States and the Near East* (Harvard) are useful. Dorothy Borg, *American Policy and the Chinese Revolution, 1925-1928* (Macmillan), is detailed and well documented. Two monographs are Werner Levi, *American-Australian Relations* (Minnesota) and Robert Langer, *Seizure of Territory* (Princeton), the second examining the theory and practice of the Stimson Doctrine.

SOCIAL HISTORY

No important contribution to American social history was made in 1947. Dutton began its "Society in America" series with Cleveland Amory's *Proper Bostonians*, a book more valuable to the raconteur than to the scholar. A different segment of society is differently handled in W. F. English, *The Pioneer Lawyer and Jurist in Missouri* (Missouri).

American colleges are considered in Horace Coon, *Columbia* (Dutton); G. F. Govan and J. W. Livingood, *The University of Chattanooga* (Chattanooga); and Mary Watters, *The First Hundred Years of MacMurray College* (MacMurray). Newton Edwards and H. G. Richey discuss the dynamics of education in *The School in the American Social Order* (Houghton, Mifflin); while S. H. Ditzion's *Arsenals for a Democratic Culture* (American Library Association) essays a social history of the public library movement in New England and the Middle States between 1850 and 1900. Other books include R. D. Mosier, *Making the American Mind* (King's Crown), a digest of ideas in the McGuffey readers; E. W. Thompson, *Education for Ladies, 1830-1860* (King's Crown), a summary of thoughts on education in women's magazines; and C. H. Wilson, *Education for Negroes in Mississippi since 1910* (Meador).

Miscellaneous social themes are covered in Julia Neal, *By Their Fruits: the Story of Shakerism in South Union, Kentucky* (North Carolina); Arnold Mulder, *Americans from Holland* (Lippincott); Roger Burlingame, *Inventors behind the Inventors* (Harcourt, Brace); Morris Fishbein, *A History of the American Medical Association, 1847 to 1947* (W. B. Saunders); and John Durant, *The Story of Baseball* (Hastings).

INTELLECTUAL HISTORY

The most widely read book of the year on American literature was Van Wyck Brooks, *The Times of Melville and Whitman* (Dutton), the fourth in a series that becomes less and less useful as intellectual history. George Snell surveys briefly *The Shapers of American Fiction, 1798-1947* (Dutton); while an important aspect of American thought is ably exploited in *The Comics* (Macmillan) by Coulton Waugh. In the field of journalism, C. S. Brigham's long-awaited *History and Bibliography of American Newspapers, 1690-1820* (American Antiquarian Society) appeared. R. W. Jones, *Journalism in the United States* (Dutton) does not measure up to previously published histories. More useful, though more restricted, are J. A. Isely, *Horace Greeley and the Republican Party, 1853-1861* (Princeton), essentially a study of the *New*

York Tribune; N. N. Luxon, *Niles' Weekly Register* (Louisiana); the third volume of Philip Kinsley, *The Chicago Tribune* (Chicago Tribune) covering 1880-1900; and W. B. Rice, *The Los Angeles Star, 1851-1864* (California). R. C. Ellison, *Early Alabama Publications* (Alabama) is a study in literary interests.

ECONOMIC HISTORY

The year saw rich contributions to American economic history. Two additions to the cooperative *Economic History of the United States,* (Rinehart) are George Soule, *Prosperity Decade, 1917-1929* and Broadus Mitchell, *Depression Decade, 1929-1941.* P. S. Foner, *History of the Labor Movement in the United States* (International), describes with a slight leftist tinge the rise of the worker from colonial days to 1886. *Commonwealth* (New York University) by Oscar and Mary F. Handlin, discusses the role of government in the economy of Massachusetts from 1774 to 1861 with an emphasis on the social implications. R. W. Paul, *California Gold* (Harvard), while primarily concerned with mining, also stresses social forces. J. D. Phillips, *Salem and the Indies* (Houghton, Mifflin), combines an account of commercial enterprise with local history of a high order. M. P. DuVal, Jr., *And the Mountains Will Move* (Stanford), deals with the economics of building the Panama Canal.

Designed for the general reader are S. H. Holbrook, *The Story of American Railroads* (Crown); A. F. Harlow, *The Road of the Century* (Creative Age); S. W. Bryant, *The Sea and the States: a Maritime History of the American People* (Crowell); Marquis James, *The Metropolitan Life* (Viking); M. E. Sheppard, *Cloud by Day: the Story of Coal and Coke and People* (North Carolina); and C. M. Wilson, *Empire in Green and Gold: the Story of the American Banana Trade* (Holt).

Monographs include P. E. Abelarde, *American Tariff Policy towards the Philippines, 1898-1946* (King's Crown); W. W. Belcher, *The Economic Rivalry between St. Louis and Chicago, 1850-1880* (Columbia); Kenneth Bjork, *Saga in Steel and Concrete: Norwegian Engineers in America* (Norwegian American Historical); Walter Firey, *Land Use in Central Boston* (Harvard); Edwin Frickey, *Production in the United States, 1860-1914* (Harvard); T. S. Harding, *Two Blades of Grass: a History of Scientific Development in the U. S. Department of Agriculture* (Oklahoma); J. W. Livingood, *The Philadelphia-Baltimore Trade Rivalry, 1780-1860* (Pennsylvania Historical Commission); E. C. May, *A Century of Silver* (Robert M. McBride); H. L. Staples and A. T. Mason, *The Fall of a Railroad Empire* (Syracuse); and W. F. Wilcox, *The Farmer in the Second World War* (Iowa State).

THE ARTS

The year's outstanding contribution to the history of American art is J. T. Flexner, *American Painting: First Flowers of the Wilderness* (Houghton, Mifflin). C. P. Hornung, *Handbook of Early American Advertising Art* (Dover), tills a new field. Other works are Wolfgang Born, *Still Life Painting in America* (Oxford); Deering Davis, *Annapolis Houses, 1700-1775* (Architectural Book); John Drury, *Historic Midwest Houses* (Minnesota); Harry Birdoff, *The World's Greatest Hit: "Uncle Tom's Cabin"* (S. F. Vanni); E. J. Gergely, *Hungarian Drama in New York, 1908-1940* (Pennsylvania); and E. J. R. Isaacs, *The Negro in the American Theatre* (Theatre Arts).

PICTORIAL HISTORY

Despite high price tags, Roger Butterfield, *The American Past* (Simon and Schuster) and Agnes Rogers and F. L. Allen, *I Remember Distinctly* (Harper), became best-sellers. The first utilized the technique of *Life* magazine; the latter is a pictorial abridgement of Allen's *Only Yesterday* and *Since Yesterday.* Other books of this nature are W. J. Lane, *A Pictorial History of Princeton*

(Princeton); E. P. Alexander, *The Pennsylvania Railroad: a Pictorial History;* and Desider Holisher, *Pilgrims Path* (Stephen-Paul).

MILITARY AND NAVAL HISTORY

In addition to histories of the recent war effort, the following may be noted: J. R. Jacobs, *The Beginnings of the U. S. Army, 1783-1812* (Princeton); Allen Westcott, *American Sea Power Since 1775* (Lippincott); and S. F. Horn, *Gallant Rebel* (Rutgers), on the *CSS Shenandoah.*

THE OTHER AMERICAS

C. H. Haring summarizes a long study of Spanish colonial institutions in *The Spanish Empire in America* (Oxford). Two aspects of the race problem in this hemisphere are treated in Frank Tannenbaum, *Slave and Citizen: The Negro in the Americas* (Knopf) and in John Collier, *The Indians of the Americas* (Norton). Lesser works include T. E. Sanford, *The Story of Architecture in Mexico* (Norton); Arnold Hoffman, *Free Gold: the Story of Canadian Mining* (Rinehart); and Paul Blanshard, *Democracy and Empire in the Caribbean* (Macmillan).

EUROPEAN HISTORY

Still shut off from customary sources, American scholars made but slight contributions in 1947 to the history of countries other than their own. No work of outstanding prominence was published.

Books on the Ancient, Medieval, and early Modern periods include H. E. Winlock, *The Rise and Fall of the Middle Kingdom of Thebes* (Macmillan); W. W. Hyde, *Ancient Greek Mariners* (Oxford); W. A. Morris and J. R. Strayer, *The English Government at Work, 1327-1336* (Medieval Academy of America); James Broderick, *The Progress of the Jesuits, 1556-1579* (Longmans, Green); J. H. Mitchell, *The Court of the Connetablie: a Study of the French Administrative Tribunal during the Reign of Henry IV* (Yale); G. H. Dodge, *The Political Theory of the Huguenots of the Dispersion* (Columbia); E. J. Hamilton, *War and Prices in Spain, 1651-1800* (Harvard); Penfield Roberts, *The Quest for Security, 1715-1740* (Harper), a volume in the *Rise of Modern Europe* series; N. N. Schargo, *History in the "Encyclopedie"* (Columbia); and R. M. Brace, *Bordeaux and the Gironde, 1789-1794* (Cornell).

For the later modern period see M. R. Adams, *Studies in the Literary Backgrounds of English Radicalism* (Franklin and Marshall); A. W. Brown, *The Metaphysical Society* (Columbia); W. C. Chamberlin, *Economic Development of Iceland through World War II* (Columbia); J. R. Cuneo, *The Air Weapon, 1914-1916* (Military Service); H. W. Ehrmann, *French Labor: from Popular Front to Liberation* (Oxford); T. A. Jackson, *Ireland Her Own: an Outline History of the Irish Struggle for National Freedom and Independence* (International); Mary MacDonald, *The Republic of Austria, 1918-1934* (Oxford); C. A. Manning, *The Story of the Ukraine* (Philosophical Library); and W. Y. Tindall, *Forces in Modern British Literature, 1885-1946* (Knopf).

HISTORY OF ASIA AND AFRICA

There was no major work on these areas; but see G. C. Allen, *A Short Economic History of Modern Japan, 1867-1937* (Macmillan); K. S. Twitchell, *Saudi Arabia* (Princeton); R. L. Buell, *Liberia: a Century of Survival, 1847-1947* (Pennsylvania); C. H. Huberich, *The Political and Legislative History of Liberia* (Central Book Company); Julius Lewin, *Studies in African Native Law* (Pennsylvania); and C. M. Wilson, *Liberia* (Sloane).

XXV. LITERATURE AND LANGUAGE

BIOGRAPHY

By Malcolm Oakman Young
Reference Librarian, Princeton University

GENERAL

There are no outstanding new tendencies in the 1947 product of biographies, as in some of the past years. Both quantity and quality, however, are quite up to average. In *The New York Times Book Review* for Aug. 3, Prof. Henry Steele Commager, in connection with a preview of memoirs to be published, adequately surveys the memoirs of those active in public affairs published in the past ten years. The Pulitzer Prize was awarded to William Allen White's *Autobiography*.

COLLECTIVE WORKS

A volume attractive in every way is *American Portraits* (Holt), made up of 60 pictures by Enit Kaufman, accompanied with short biographical sketches by Dorothy Canfield. Richard D. Mallrey edited *Masterpieces of Autobiography* (Doubleday), a digest of ten titles. *Men of Law* (Macmillan), by William Seagle, contains short sketches of legal personalities from ancient to modern times. Rufus M. Jones in *Luminous Trail* (Macmillan) delineates certain saintly characters. Oscar Lewis' *Silver Kings* (Knopf) deals with the various developers of the Nevada Comstock Lode. Geoffrey T. Hellman includes some of his *New Yorker* "Profiles" in his *How to Disappear for an Hour* (Dodd, Mead). *The Other Side of the Record* (Knopf), by Charles O'Connell, is made up of amusing views of musicians and other entertainers. *The One with the Mustache Is Costello* (Random House) is also a series of brief sketches of entertainers by George Frazier. Essays on six English writers make up Laura L. Hinkley's *Ladies of Literature. The Proper Bostonians* (Dutton) is an often amusing book by Cleveland Amory.

THE PRESIDENTS

Frank Kingdon's *Architects of the Republic* (Beechhurst) assesses the contributions of Washington, Jefferson, Lincoln, Franklin D. Roosevelt. *Country Life in America, as Lived by Ten Presidents of the United States* (Knopf) is a compilation by Edward T. Booth. *Sons of Presidents* (Odyssey Press), by J. Perling, is another volume belonging to this group. A second volume of her well done work is Marie Kimball's *Jefferson, War and Peace, 1776-1784* (Coward). Another interpretation is *Thomas Jefferson: American Humanist* (Macmillan) by Karl Lehmann, while one side of the same subject is brought out briefly in *Thomas Jefferson, Champion of Religious Freedom* (Beacon) by Henry W. Foote. In her biography of Abigail Adams (Little, Brown), Janet Whitney of course includes certain light on John Adams. Several worthwhile volumes join the huge Lincoln bibliography: *Portrait for Posterity* (Rutgers University Press) by Benjamin P. Thomas, is a valuable survey of the principal biographies of Lincoln; *Abraham Lincoln, His Life, Work and Character* (Creative Art) is a compilation of extracts from many sources, edited by Edward Wagenknecht; J. G. Randall's *Lincoln, the Liberal Statesman* (Dodd, Mead), consists of eight illuminating essays; *The Lincoln Reader*, edited by Paul M. Angle (Rutgers University Press) contains 179 articles picturing every phase of his life. G. A. Sumner's *Meet Abraham Lincoln* (Harper) is a brief volume of essays containing some little known material. The first volume of what promises to be a high-ranking work is Arthur S. Link's *Wilson: The Road to the White House* (Princeton University Press). In *The New York Times Book Review* for Jan. 26, Karl Schriftgiessen surveys the books appearing on Franklin D. Roosevelt. The first volume of his correspondence is *Franklin Delano Roosevelt,* *His Personal Letters, Early Years* (Duell). Alden Hatch's book on this subject is intended for juveniles (Holt). *Reilly of the White House* (Simon, Schuster), as told by Franklin D. Roosevelt's Secret Service guard, Michael Reilly, to W. J. Slocum, gives us vivid pictures of the President. A political biography is *Harry Truman* (Duell) by William P. Helm.

POLITICAL FIGURES

Edited by Carl Van Doren, *Letters and Papers of Benjamin Franklin and Richard Jackson* (American Philosophical Society) bring new light on the two 18th century figures. Relating the orator to his times is Jacob Alexad's *Patrick Henry: the Voice of Freedom* (Random House). A less known character is revealed in William L. Lucey's *Edward Kavanagh: Catholic, Statesman, Diplomat from Maine, 1795-1844* (Marshall Jones). Covering only part of the subject's life is Charles C. Tansill's *Congressional Career of Thomas Francis Bayard, 1869-1885* (Georgetown University Press).

A vivid picture of Michigan of the early 19th century is produced in Kent Sagendorph's *Stevens Thomson Mason* (Dutton), the subject having been Secretary and Acting Governor of the Territory. New York state politics form the setting of *Thurlow Weed: Wizard of the Lobby* (Little, Brown) by G. G. Van Deusen. *Benjamin F. Perry, South Carolina Unionist* (Duke University Press) is by Lillian A. Kibler.

A study of the decade prior to the Civil War is carefully done by Jeter A. Isely in his *Horace Greeley and the Republican Party, 1853-1861* (Princeton University Press). *Forgotten First Citizen* is by Margaret Clapp who portrays John Bigelow, active in city, state, national affairs, and diplomat. Gifford Pinchot's *Breaking New Ground* (Harcourt) is the timely story of the author's efforts for conservation of our natural resources, and the politics involved. Joseph E. McLean's *William Rufus Day* (Johns Hopkins Press) is a portrait of the Supreme Court Justice. The fifth volume of Josephus Daniels' autobiography is *Shirt-Sleeve Diplomat* (University of North Carolina Press), covering his ambassadorship to Mexico. Including three generations, *The Wallaces of Iowa* (Houghton Mifflin) is by Russell Lord. Two New York City figures appear in the autobiographical volumes, *Night Stick* (Dial) by Lewis J. Valentine, Police Commissioner, and *You're the Boss* (Viking) by Edward J. Flynn, Democratic leader. Another biography of Gen. George C. Marshall has appeared, this one by William F. Frye (Bobbs-Merrill).

MILITARY FIGURES

In *The First Captain* (Coward), Gerard W. Johnson studies John Paul Jones and his influence. A soldier of fortune in the Far East of the middle 19th century, Frederick T. Ward, is vividly treated by Hallett Abend (Doubleday). Roy Meredith has collected, with some text, many portraits in a volume called *The Face of Robert E. Lee* (Scribner). *I Fought with Custer* (Scribner) by F. and R. Hunt, is the story of Charles Windolph, probably the last survivor of the massacre. Among the many Second World War volumes, the following are outstanding: *The Big Yankee* (Little, Brown) by Michael Blanford, a life of the Marine Carlson; *War As I Knew It* (Houghton Mifflin) by the late Gen. George S. Patton, Jr.; *Halsey's Story* (Whittlesey) by Admiral Halsey.

AUTHORS

An almost forgotten humorist is recalled in Cyril Clemens' *Shillaber* (International Mark Twain Society). *The Amiable Autocrat* (Schuman), by Eleanor M. Tilton, is another biography of Oliver Wendell Holmes, the elder. Mason Wade, biographer of historian Parkman has now edited the valuable *Journals of Francis Parkman* (Harper), in two volumes. *"Ben Hur" Wallace* (University of California Press) is by Irving McKee. Three important years, and their influence, are chronicles in *Mark Twain in Nevada* (Scribner) by Effie M. Mack. The intellectual history of the United States is included in *The James Family* (Knopf) by F. O. Matthiessen, who surveys William and Henry James, their father, Henry Sr., and their less known sister Alice. *Henry Adams and His Friends* (Houghton Mifflin) is a collection of Adams' unpublished letters, edited by Harold D. Cater, and making a vivid picture of the group. In his biography, *George Ade* (Bobbs-Merrill), Fred C. Kelly emphasizes the humorist's influence on his time. *Jack London, American Rebel* (Citadel) is a selection of his writings plus a biography by Philip S. Foner. In a pleasant volume (Macmillan), John Lomax relates his adventures ballad hunting.

With a new introduction by H. L. Mencken, his three autobiographical books have appeared in a one-volume edition (Knopf). *A House in Chicago* (University of Chicago Press) by O. H. Dunbar, pictures Mrs. William Vaughn Moody and the literary circle centered there. *The Marble Man's Wife* (Scribner), by Hayden Norwood, pictures the mother of Thomas Wolfe. In *These Things Are Mine* (Macmillan), the playwright George Middleton writes of himself and his friends. The debunking biographer W. E. Woodward calls his autobiography *The Gift of Life* (Dutton). *Linden on the Saugus Branch* (Random House) is the recalled childhood of Elliot Paul. Another book of childhood memories is MacKinley Kantor's *But Look the Morn* (Coward). A short book is *The Case of Erle Stanley Gardner* (Morrow) in which Alva Johnson reviews the detective story writer. *We Were Interrupted* (Doubleday) is another volume of the memoirs of Burton Rascoe. John Erskine's delightful *The Memory of Certain Persons* (Lippincott) concerns himself as teacher, writer, musician and critic. *American Memoir* (Houghton Mifflin), partly a republishing of earlier volumes, is Henry Seidel Canby's contacts with the literary life of the past two or three decades.

THE PRESS

Two more volumes center around the Kansas editor: *William Allen White's America* (Holt) by Walter Johnson and White's *Selected Letters* (Holt), edited with introduction by Walter Johnson. Among other interesting experiences, George Creel in his *Rebel at Large* (Putnam) gives sidelights on Wilson. *Some Days Were Happy* (Random House) is the columnist Louis Sobol's reminiscences. Light reading is *Man on the Half Shell* (McGraw-Hill) in which Frederick C. Othman, reporter, tells his Hollywood and Washington experiences. *Champagne Cholly* (Dutton) is Eve Brown's life of Maury Paul, society reporter of the 20's and 30's. Further reminiscences by Robert J. Casey are entitled *More Interesting People* (Bobbs-Merrill). *More Post Biographies* (University of Georgia) is a collection of sketches of journalists, appearing first in the *Saturday Evening Post*. *An American Dynasty* (Doubleday), by John Tebbel, deals with the newspaper families of the McCormicks and the Pattersons with Chicago and Washington as backgrounds.

MINISTERS AND EDUCATORS

World of Justus Falckner (Muhlenberg Press) is a rediscovery by Delber W. Clark of the 18th century Lutheran pastor influential in the Hudson Valley. *The Soul of Frederick W. Robertson* (Harper) is James R. Blackwood's analysis of the Brighton preacher. *Lyman Pierson Powell* (Philosophical Library) is Charles MacFarland's narrative of the preacher, lecturer, writer. Two volumes concern less known ministers: Green P. Wertenbaker's *Pierre B. Hill* (McGraw-Hill) introducing a missionary among Texan cowboys; *Laughing into Glory* (Stewart), the early memories of Hodge M. Eagleson, Methodist minister at the turn of the century.

Alexander D. Bache, President of Girard College and scientist, is delineated by Merle M. Odgers (University of Pennsylvania Press). The first president of Bryn Mawr, the individualistic Carey Thomas, is pictured by Edith Finch (Harpers). A pleasant volume is *Amherst Boyhood* (Amherst College) by Alfred E. Stearns, former headmaster of Andover.

SCIENTISTS, DOCTORS

A little known individual, Josiah White (Stephen Daye), is brought to light by Eleanor Morton, as a miner, inventor, and developer of the Pennsylvania coal resources. Another 19th century inventor and engineer, James B. Eads, is recalled by Florence Dorsay in *Road to the Sea* (Rinehart). *Douglas of the Fir* (Harvard University Press), by A. G. Harvey, is the story of the botanist and explorer, David Douglas. *Hermon Carey Bumpus* (University of Minnesota Press) is by Hermon C. Bumpus, Jr., son of the 19th century naturalist. *Thomas Edward Shields, Biologist, Psychologist, Educator* (Scribner) is by Justine Ward. *Henry Sewall, Physiologist and Physician* (Johns Hopkins Press) is by Desmond Powell. A lighter production is *A Doctor in the House* (Lippincott), reminiscences of the general physician by Henry Pleasants, Jr. Another readable narrative is *Petticoat Surgeon* (Pellegrini), by Bertha Van Hoosen, whose 60 years of experience took her to many parts of the world. Told with dry humor is another autobiography, *World Expands* (Harvard University) by the zoologist, George Howard Parker. *Banting's Miracle* (Lippincott), by Seale Harris, of course, deals with the developer of insulin. A two-volume compilation edited by Grace Crile is *George Crile* (Lippincott), autobiography of the surgeon and brilliant researcher.

INDUSTRIALISTS

Fred H. Colvin, in his *Sixty Years with Men and Machines* (Whittlesey), recalls much of this country's industrial history since the Civil War. Julian Dana brings to notice the power in the financial world, A. P. Giannini (Prentice). The life of War Production Chief and industrialist Knudsen is by Norman Beasley (Whittlesey). Jan Fisher's *Fabulous Hoosier* (McBride) is an account of her husband Carl G. F. Fisher, promoter, Hans W. Heinsheimer, immigrant who became a music publisher calls his memoirs *Menagerie in F Sharp* (Doubleday). The famous Chicago store is the center of *The Marshall Fields* (Dutton), written by John Tebbel.

VARIOUS ARTISTS

Harps in the Wind (Macmillan), by Carol Bunk, is the second volume within two years portraying the Hutchins, the New Hampshire family which from the 1840's sang its way through this country and abroad. A modern figure, Frank Sinatra, is the subject of *The Voice* (Harper) by Ely J. Kahn. The great orchestra conductor, Koussevitzky is portrayed by Moses Smith (Ellery Towne). *With Strings Attached* (Knopf) is an autobiographical volume by the violinist Joseph Szigeti. *We Called It Music* (Holt) by Eddie Condon, with the narrative by Thomas Sugrue, is a lively autobiography of the leading jazz man of the time. An actress of the 50's and 60's, Adah Lewis Menken, is recalled by Allen Lesser in *Enchanting Rebel* (Beechhurst).

A two-volume work on the painter and his work is *Charles Willson Peale* (American Philosophical Society) by Charles C. Sellers. The sculptor, Daniel Chester French, is entertainingly remembered by his daughter, Margaret F. Cresson, in *Journey in Fame* (Harvard University Press). Including reproductions of the artist's paintings of the Old West, *Frederick Remington* (Lippincott) by Harold McCracken, is an attractive volume. Another painter appears in *Russell Cheney* (Oxford) with notes by F. O. Matthiessen. Cyrus L. Baldridge in his *Time and Chance* (Day) includes many of his drawings done on his travels and amid his often adventurous career.

MISCELLANEOUS

This unusually large and varied group is begun with Willard H. Bonner's *Pirate Laureate* (Rutgers University Press), the life and legends of Captain Kidd. Another chronicle of the western explorers Lewis and Clark is by John Bakeless (Morrow). *Dark Companion* (McBride) by Bradley Robinson is the story of the negro Henson who accompanied Peary on his expeditions. Another polar explorer appears in *Manner of the North* (Duell), life of Captain Bob Bartlett by George D. Putnam. *There Was Once a Slave* (Messner) is a semi-fictional biography by Shirley Graham of the slave leader in the abolition movement, Frederick Douglass. *Ruggles of New York* (Columbia University Press) by D. G. B. Thompson recalls one active in New York City and state affairs in the early 19th century. *David Curtis Deforest and the Revolution of Buenos Aires* (Yale University Press) by Benjamin Keen deals with an American active in the business and political affairs of the Argentine in the 19th century.

The Articulate Sisters (Harvard University Press) is a small volume of passages from the journals and letters of the daughters of President Josiah Quincy of Harvard, edited by M. A. DeWolfe Howe. From a quite different atmosphere comes *The Cap'n's Wife* (Syracuse University Press), the adventurous life of Didama Doane, wife of a Cape Cod captain, by Albert J. George. Two autobiographies appear of women active in Chicago civic affairs: Hannah G. Solomon's *Fabric of My Life* (Bloch) and Sarah L. H. Hart's *The Pleasure Is Mine* (Abraham Lincoln Bookshop). *The Life of Judah Touro* (Jewish Publication Society) is Leon Huhner's account of an early American philanthropist. *Father and the Angels* (Dutton) by William Manners is the author's picture of his father, an Ohio rabbi.

In *920 O'Farrell Street* (Doubleday) Harriet L. Levy recalls her early home in San Francisco and her later days in Paris, in the circle of Gertrude Stein. Thought provoking is *My American Pilgrimage* by the Macedonian immigrant Stoyan Christowe.

Another Day, Another Dollar (Lippincott) is John T. Winterich's recollections of a Providence boyhood, and *When I Was a Boy in Boston* (Beechhurst Press) is by Charles Angoff. A book of value as a social picture is Katherine D. Lumpkin's *The Making of a Southerner* (Knopf), her life from Civil War days to the present. Another view of the American colony in Paris of the 20's and 30's is Samuel Putnam's *Paris Was Our Mistress* (Viking). *Green Memories* (Harcourt) by Lewis Mumford is the eloquent biography of the author's son, Geddes, killed in the Second World War.

Joseph Wedemeyer: Pioneer of American Socialism (International) is by Karl Obermann. *This Is My Story* (Whittlesey) is the timely story of Louis Budenz, ex-communist. *The Golden Voice: a Biography of Isaac Kalloch* (Farrar) by M. M. Marberry, revives the extraordinary character who was preacher, pioneer, mayor of San Francisco, railroad promoter. *Howe & Hummel* (Farrar) is Richard Rovere's vivid account of the notorious New York law firm. *Samuel Jones* (University of Oklahoma) is Ben Jones' story of an individualistic small town Kansas lawyer. Lloyd Morris' *Postscript to Yesterday* (Random House) is a provocative interpretation of the past 50 years based on personalities.

Well received was *My Life Story* (Duell) by Joe Louis, pugilist. *Strikeout Story* (Barnes) is the title given by the pitcher Robert W. A. Feller to his recollections. Rather critical of his subject is John G. T. Spink's *Judge Landis* (Crowell). A group of the informal type of biography are listed: Benedict and Mary Freedman's *Mrs. Mike* (Coward), telling of a "wilderness wife"; Haydie Yates' *70 Miles from a Lemon* (Houghton Mifflin); R. E. Gould's *Yankee Drummer* (Whittlesey); *The Loud Red Patrick* (Harcourt), Ruth McKenney's entertaining picture of her grandfather. *Journey to the End of a War* (Scribner) is the autobiography of Melvin Hall, whose life has been spread over most of the world, with service in the wars, all vividly narrated.

FOREIGN SUBJECTS

Two studies center on the Apostle Paul, one by Edgar J. Goodspeed (Winston), the other, *The Jew of Tarsus* (Macmillan) by Hugh J. Schonfield. *Alexander the Great* (Dutton) is a scholarly product by Charles A. Robinson, Jr. *Horace* (Harvard University Press) by Henry D. Sedgwick, includes an account of contemporary life. *Eternal Lawyer* (Macmillan), by Robert N. Wilkin, is another well-done treatise.

Alexander I of Russia (Norton), by L. I. Strakhovsky, is a story full of intrigue and glamor. Arthur S. Riggs' *Velazquez* (Bobbs-Merrill) is a study of the artist and his work. An early saint is the subject of Mabel Farnum's *St. Anthony of Padua* (Didier). The famous romance of Duse and d'Annunzio is the center of Bertita Harding's *Age Cannot Wither* (Lippincott). *Freud* (Howell) by Helen W. Puner reveals his life and mind. *The Great Elector* (University of Chicago Press) is by Ferdinand Schevill, and deals with the 17th century Frederick William of Brandenburg. The German labor leader of the 60's, Ferdinand Lassalle, is studied by David Footman (Yale University Press).

The amazingly versatile Albert Schweitzer receives further praise in *Prophet in the Wilderness* (Macmillan) by Hermann Hagedorn. *Difficult Star* (Longmans) is the story of the saintly Frenchwoman Pauline Jaricot, by Katherine Burton. *Two Romantics and Their Ideal Life* (Odyssey Press), by Vernon Loggins, is the narrative of the sculptress Elisabet Ney and her philosopher husband, Edmund Montgomery.

A valuable contribution is *Correspondence of Sir Thomas More* (University of Pennsylvania Press) edited by Elizabeth F. Rogers. Charles Norman's *So Worthy a Friend* (Rinehart) is a biography of Shakespeare. *Sir Humphrey Mildway* (Rutgers University Press) by Philip L. Ralph, presents a Royalist gentleman and glimpses of the English scene from 1633 to 1652. *Hannah More and Her Circle* (Longmans), by Mary Alden Hopkins, centers on the 18th century religious writer.

The American legal light, Lloyd P. Stryker, has written of Thomas Erskine, English barrister, 1750-1823 (Doubleday). *The Life of Edward Fitzgerald* (Yale University Press), by Alfred M. Terhune, is a picture of the translator of *The Rubaiyat*. A sympathetic biography of Frank Harris is by E. Merrill Root (Odyssey Press). *Like Moonlight on Snow* (McBride) by John Hewlett, has as its subject the Bolivian tin king, Patino. A well reviewed work by Ralph Roeder is the two-volume *Juarez and His Mexico* (Viking).

TRAVEL

By Wilma Belden Fairchild
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GENERAL

Most of the travel books of 1947 were concerned with the Western Hemisphere, a condition that has been characteristic, understandably, of the past few years. Alaska is well-represented, indicating an increasing interest in the Territory from the point of view both of tourism and settlement. Latin America has grown in importance in the travel field as in many others, and the United States continues to be the subject of numerous books of a regional and interpretive character.

ALASKA, CANADA, LABRADOR

Two books that place emphasis on present conditions and future opportunities in Alaska are Edward A. Herron's *Alaska: Land of Tomorrow* (Whittlesey House) and J. B. Caldwell's *Introducing Alaska* (Putnam). The well known Canadian anthropologist, Marius Barbeau, has provided in *Alaska Beckons* (Caxton) a great deal of interesting material on the Asiatic beginnings of Alaskan Indian culture. *We Live in the Arctic* (Little, Brown) is the very readable account of Constance and Harmon Helmericks' winter sojourn in a cabin at the junction of the Kutuk and Alatma Rivers. In *The Flying North* (Macmillan) Jean Potter pays tribute to the "bush pilots" of Alaska and to the service they have rendered the Territory by their exploits. Murray Morgan's *Bridge to Russia* (Dutton) supplies welcome information on the history and character of the Aleutians. *Raw North* (Barnes) by Charles E. Gillham is an entertaining account of the author's travels through western Arctic Canada and Alaska, and more particularly of the people he met and came to know. A. R. Horr has written in *The Log of the Schooner Bowdoin* (World) an informal record of a cruise along the Labrador coast in Commander Macmillan's well-known vessel. The crew, in this instance, was largely made up of business men, all amateur seamen. Turning to the south and west, Florence Page Jaques' *Canadian Spring* (Harper) deals delightfully with a motor trip made by the author and her artist-naturalist husband through the western provinces of Canada in search of wildlife. Mr. Jaques' excellent drawings illustrate the book.

UNITED STATES REGIONAL SERIES

Only one newcomer to the now famous American Guide Series appeared in 1947. This was *Ghost Towns of Colorado* (Hastings House), a slim but colorful addition to the series. *Illinois: A Descriptive and Historical Guide* (McClurg), *Michigan: A Guide to the Wolverine State* (Oxford), and *San Francisco: The Bay and Its Cities* (Hastings House) were revised and reissued during the year. The eighth volume in the American Lakes Series, written by Dale L. Morgan, concerns the lore and landscape surrounding *The Great Salt Lake* (Bobbs-Merrill). In *The Connecticut* (Rinehart), a volume in the Rivers of America Series, Walter Hard has interpreted the present in the light of the past to provide a portrait of "this truly Yankee stream." In the same series, Marjorie Stoneman Douglas' *The Everglades: River of Grass* (Rinehart) appeared concurrently with the dedication of the area as America's newest national park.

Homer Croy's *Corn Country* and Donald Day's *Big Country: Texas* are two delightful additions to the American Folkways Series published by Duell, Sloan, and Pearce. *The Sierra Nevada: The Range of Light* (Vanguard) continues the American Mountain Series, edited by Roderick Peattie. To the Look at America Series, initiated in 1946 by the publication of a large and beautiful volume of the same title, the editors of *Look Magazine* have contributed four books of smaller format but of equal quality. These are *New England* (in collaboration with Mary Ellen Chase), *The Central Northwest* (in collaboration with Wallace Stegner), *The South* (in collaboration with David L. Cohn), and *The Southwest* (in collaboration with Paul Horgan). Each volume admirably fulfills its expressed function as "A Handbook in Pictures, Maps and Text for the Vacationist, the Traveler, and the Stay-at-Home." The series is published by Houghton Mifflin.

In addition to the continuation of former series as noted above, the current year has witnessed the inauguration of two new regional series. The American Trails Series, edited by Jay Monaghan and published by Bobbs-Merrill, has been planned "so that eminent historians can tell the story of the great natural routes that traced the design of a nation, tell it for the general reader without sacrifice of human interest, color or scholarship." In the inaugural volume, *The Wilderness Road,* Robert L. Kincaid has traced the history of the first route across the Appalachian barrier and indicated its influence in the pattern of American expansion. Mr. Monaghan has himself written the second volume, *The Overland Trail,* which describes the development of the great east-west route of migration across the continent.

With *Evergreen Land: A Portrait of the State of Washington,* Nard Jones initiates Dodd, Mead and Company's Sovereign States Series, books that are described by the publishers as "biographies of the various States of this country," with emphasis on the human characteristics—"the people, their folkways, their prejudices and their prides, the intangible things that distinguish the people of one State from their neighbors . . ."

GUIDEBOOKS AND HANDBOOKS

Guide to America (Public Affairs Press), edited by the travel director of the American Automobile Association, Elmer Jenkins, is "a treasury of information" about the states, their cities, parks, and historical monuments. Byron Steel's *Let's Visit Our National Parks* (McBride) contains in capsule form essential data on routes, accommodations, and points of interest. *Death Valley Handbook* (Duell, Sloan and Pearce), by George Palmer Putnam, provides pertinent facts on the climate, plants, birds, mammals, and rocks of one of our most colorful tourist meccas; it supplements Mr. Putnam's earlier regional study, *Death Valley and Its Country* (American Folkways Series, Duell, Sloan and Pearce, 1946). An elaborate and helpful guide to the west is Fred Bond's *Westward How* (Camera Craft Publishing Co.), of which the subtitle gives a fair indication of the contents: "How, Where, and When to Go, What to See, and How to Shoot It." The last phrase refers to technical advice on photography; the book is lavishly illustrated with the author's photographs.

INTERPRETIVE PUBLICATIONS

Those who accept the premise that New England is a state of mind will find pleasure in Zephine Humphrey's *A Book of New England* (Howell, Soskin), which includes essays on such favorite institutions as town meetings, maple sugar, ships, and weather. A number of paintings by the marine artist, W. N. Wilson, has been reproduced, six in full color, in *Along the Maine Coast* (Whittlesey House); the accompanying text was written by Dorothy Mitchell. Turning to the south, Samuel Chamberlain has captured the beauty and serenity of the Old Dominion in two photographic volumes, *Behold Williamsburg* and *Springtime in Virginia* (both Hastings House). Harnett T. Kane's *Natchez on the Mississippi* (Morrow) evokes the charm and discusses the cultural heritage of that lovely city. In *The World Grows Round My Door* (Scribner) David Fairchild describes his Florida home and the plants that surround it—flowers and trees collected in the course of 50 years of plant exploring throughout the world.

One of our least known and most interesting states is the subject of two books: John Gould Fletcher's *Arkansas* (University of North Carolina Press) and Marguerite Lyon's *Hurrah for Arkansas* (Bobbs-Merrill). The former is a comprehensive interpretation of history and economy, the latter a gay and personal record of experiences; both are informative and entertaining. "A sound and lively volume" on the Hoosier state is John Bartlow Martin's *Indiana: An Interpretation* (Knopf).

The West, particularly California, is well represented. Joyce and Josef Muench have produced a photographic survey entitled *West Coast Portrait* (Hastings House) and also a similar record of Kings Canyon National Park, *Along Sierra Trails* (Hastings House). Another national park is the subject of *One Hundred Years in Yosemite* (University of California Press), by Carl Parcher Russell. *California in Our Time* (Knopf), by Robert Glass Cleland, recounts the history of the Golden State from 1900 to 1942. Oscar Osburn Winther's *The Great Northwest* (Knopf) is likewise historical in emphasis, covering Oregon and Idaho from Indian times to the present.

AMERICAN CITIES

"Profiles" of 22 cities, their traditions, character, and aspect, are included in *Cities of America* (Whittlesey House) by George Sessions Perry. Two slim pictorial volumes by Josef Muench portray *Salt Lake City* (Hastings House) and *San Francisco Bay Cities* (Hastings House). Ruby Fay Purdy's *The Rose City of the World* (Binfords and Mort) is at once a chronicle of and a guide to Portland, Oregon. *San Francisco Is Your Home* (Stanford University Press), by Samuel Dickson, is described as a kaleidoscope—"colorful history and biographical bits shaken up together to form the exciting patterns that are San Francisco, past and present."

WEST INDIES

Page Cooper's book on the Dominican Republic, *Sambumbia* (Caribbean Library), is "a picture of the island of Columbus as it is today and the people who are his heirs." Through her skillfully written vignettes of personalities, she has succeeded admirably in catching the spirit of the country as well as in producing many interesting facts about it. Another book on the human side is Melville J. and Frances S. Herskovits' *Trinidad Village* (Knopf), an anthropological study of Negro culture in the settlement of Toco.

MEXICO AND CENTRAL AMERICA

Hudson Strode's *Now in Mexico* (Harcourt, Brace) is "a selective recountal of various trips to different parts of the country made at intervals during the past eleven years." Those already familiar with Mr. Strode's ability to interpret foreign scenes and peoples will find the present volume a worthy successor to his earlier books. Another fine study of the country and its people is Herbert Cerwin's *These Are the Mexicans* (Reynal and Hitchcock). *You Must Go to Mexico* (Ziff Davis), by Cecil and Fred Carnes, is at once a helpful tourist guide and a humor-spiced narrative of a motor trip down the Pan American Highway.

Ralph Hancock's *The Rainbow Republics: Central America* (Coward-McCann), a volume in the Invitation to Travel Series, presents a great deal of useful tourist information in easily digestible form. In *Banana Paradise* (Stephen-Paul), Frances Emery-Waterhouse describes life in Siguican, a banana town in southern Guatemala, as she came to know it during several years' residence. Another interpreter of the Guatemalan scene is Jean Hersey, whose *Halfway to Heaven: A Guatemala Holiday* (Prentice Hall) combines background with anecdote to provide an engaging portrait of the country.

SOUTH AMERICA

A light-hearted volume that covers 13 countries from Mexico to Argentina is Oden and Olivia Meeker's *. . . And Points South* (Random House). Ainslie and Frances Conway spent five difficult but rewarding years in the inhospitable environment of the Galápagos Islands and recounted their experiences in *The Enchanted Islands* (Putnam). Two scientists' wives have written vividly of life in Colombia: Virginia Pearson, living in an oil company camp in the tropical lowlands, contended with ants, lizards, scorpions, and monkeys—in fact, *Everything but Elephants* (Whittlesey House); Nancy Bell Bates' domain is the small city of Villavicencio in the llanos region, which is *East of the Andes and West of Nowhere* (Scribner's). Peru and Bolivia are illuminated through anecdote, fact, and description in *Lands of the Andes*

(Coward-McCann) by T. R. Ybarra, and Betty Sherbinin has performed the same service for *The River Plate Republics* (Coward-McCann), Paraguay, Uruguay, and Argentina. The "Yanqui" of Bailey Willis' *A Yanqui in Patagonia* (Stanford University Press) is the author himself, a distinguished geologist and a shrewd observer both of people and of nature. The book deals largely with the exploration of the "lake region" of westtern Argentina in the years 1910 to 1914.

EUROPE AND AFRICA

The travel literature for Europe is still sparse. However, two guide books for France appeared in 1947: Stuart Murray's *A Traveler's Guide to France* (Sheridan House) and Sidney Clark's *All the Best in France* (Dodd, Mead). Both offer useful tourist information. Another book that might be mentioned, although its emphasis is mainly political, is Maurice Hindus' work on Czechoslovakia, *The Bright Passage* (Doubleday). In it the author devotes a relatively extensive section to "a picture of the country and its people since liberation." In *The Reluctant Rescue* (Doubleday), Olivia Manning tells the story of Sir Henry M. Stanley's little-known and ill-fated expedition across equatorial Africa for the purpose of rescuing Emin Pasha.

NEAR EAST

Saudi Arabia (Princeton University Press) represents the distillation of K. S. Twitchell's 20 years of work and 20,000 miles of travel in this little known country and thereby constitutes a valuable contribution to regional literature of the Near East. The book contains three main sections—the geographical and cultural aspects of the country, its political and social development, and its position in world economy. Selma Ekrem gives her readers fascinating glimpses of *Turkey, Old and New* (Scribner). *Promised Land* (Harper) by Ellen Thorbecke is a lavishly illustrated survey of modern Palestine.

ASIA

In *The Quest* (Doubleday), R. V. C. Bodley sets forth reflections and observations stemming from his travels in southern and eastern Asia before the war. *Kingdom of Adventure: Everest* (William Sloane), edited by James Ramsey Ullman, is "a chronicle of man's assault on the earth's highest mountain, narrated by the participants." The journal of Dr. James Morrow, "agriculturist" of the Perry Expedition to Japan in 1853, is published for the first time in *A Scientist with Perry in Japan* (University of North Carolina Press), edited by Allan B. Cole. It contains illuminating notes on the plants, crops, and farming methods of the time. Mr. Cole also edited *Yankee Surveyors in the Shogun's Seas* (Princeton University Press), which presents the records of the United States Surveying Expedition to the North Pacific from 1853-1856, following Commodore Perry.

WORKS OF GENERAL SCOPE

An unusual and richly satisfying book is Robert Cushman Murphy's *Logbook for Grace* (Macmillan), a personal record of experiences aboard the whaling brig *Daisy* in the South Atlantic in 1912-1913. The human story of the voyage is told through excerpts from letters of the author to his wife. Dorothy Carrington's *The Traveler's Eye* (Pilot Press) is another distinctive book. It is a bird's eye view of the travel literature of seven centuries, presented by means of extensive quotations interspersed with critical commentary.

TRAVEL BIOGRAPHIES

For those whose taste combines a love of adventure with an interest in personalities, several recent travel biographies are noted here. George Palmer Putnam's *Mariner of the North* (Duell, Sloan and Pearce) is the salty biography of that well-known Arctic skipper, Captain Bob Bartlett. *Maya Explorer* (University of Oklahoma Press), by Victor Wolfgang Von Hagen, is the life of John

Lloyd Stephens, whose discovery of "the lost cities of Central America and Yucatán" a century ago laid the foundation for recent Mayan archaeology. Bradley Robinson's *Dark Companion* (McBride) tells the life story of Matthew Henson, the Negro who was with Peary at the pole.

CRITICISM AND BELLES LETTRES

By John Hite
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THE NEW CRITICS

The literary criticism practiced by the "new critics" in the two decades prior to the recent war taught a generation of poets, scholars, and teachers the elementary discipline of reading a text. It will no doubt seem incredible to the future that such basic training was necessary for those who, in most cases, had long since set up shop as masters, not apprentices, in the trade of literary judgment. Yet the fact remains that most of the teachers and would-be critics had been so captivated by the historical approach, and so seduced by the false hope that at last they had found a sure and easy means of explaining away the troublesome mystery of art, that they turned from the text to the far simpler matters of origins and biography; they were like the architect who, in breaking ground for his first house, becomes interested in geology to the ultimate sacrifice of his client's hopes. It remained, therefore, for John Crowe Ransom, Alan Tate, Cleanth Brooks, and Robert Penn Warren, to mention one school of criticism, and such isolated individuals as T. S. Eliot, Yvor Winters, and R. P. Blackmur to return the attention of the reader to the text itself and to essential, not accidental, problems of judgment. History was interesting but largely impertinent, in the opinion of these new critics, and they concentrated their attention on the essential, not accidental, problems: What is a good line of verse? A good poem? Who are our best poets? and, most importantly, Why?

However, in thus setting themselves up as judges of the best poetry (the Metaphysicals, and in particular Donne), and in their strictures on certain bad poets and bad schools of poetry (in particular the Romantics), these critics managed to ignore the necessary basis in metaphysics and morals for such judgments. They were not sufficiently trained for the former, and the latter they wished to avoid, having before their eyes what they felt to be the wholly inadequate measurement of literature by the moral standards of their immediate predecessors in criticism, the neo-humanists Irving Babbitt and Paul Elmer More. The new critics restricted themselves (to borrow a subtitle from R. P. Blackmur) to essays "in craft and elucidation." It is extremely interesting, therefore, that in the publications of literary criticism for 1947, three members of the group named above, Yvor Winters, Cleanth Brooks, and Robert Penn Warren, are revealed in radical departures from or developments of attitudes proper to the previous period; and effort is made to recognize and establish a metaphysical and moral basis for literary judgment, a departure singularly appropriate to the post-war era.*

IN DEFENSE OF REASON

Yvor Winters' *In Defense of Reason* is a republication of his earlier work: *Primitivism and Decadence* (1937); *Maule's Curse* (1938); *The Anatomy of Nonsense* (1943); with a foreword and a new long essay, "The Significance of *The Bridge* by Hart Crane, or What Are We to Think of Professor X?" Throughout this work there runs a basic and important theme, which Winters himself terms moralistic but which he is careful to distinguish from over-simple or superficial didacticism. Winters insists that the act of the poet is an act of moral judgment; and in the lucid foreword to this volume he formally acknowledges that he is an absolutist, thus accepting the logical implications of his position. He lays strictures not only on the avowed relativist but also on that peculiar breed of fuzzy intellectuals (principally college professors) who attempt to shirk their intellectual and moral responsibility by never admitting to a position, yet at the same time continuing to make judgments and to act on an absolute basis.

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* Yvor Winters, *In Defense of Reason*, The Swallow Press and William Morrow & Company, New York, 1947.
Cleanth Brooks, *The Well Wrought Urn*, Reynal & Hitchcock, New York, 1947.
Coleridge, S. T., *The Rime of the Ancient Mariner*, illustrated by Alexander Calder, with an essay by Robert Penn Warren, Reynal & Hitchcock, New York, copyright 1946.

He says: "It is popular at present to profess relativism and yet in important matters to act as if we were absolutists. Our ideas of justice, which we endeavor to define by law and for which wars are fought, can be defended only by invoking moral absolutism. Our universities, in which relativistic doctrines are widely taught, can justify their existence only in terms of a doctrine of absolute truth. The professor of English Literature, who believes that taste is relative yet who endeavors to convince his students that *Hamlet* is more worthy of their attention than some currently popular novel, is in a serious predicament, a predicament which is moral, intellectual, and in the narrowest sense professional, though he commonly has not the wit to realize the fact."

WINTERS' CRITICISM OF POE

Winters' position can best be illustrated by reviewing some of his criticisms of major American writers. For instance, he attacks what he calls "the bucolic innocence of the experts is Poe"; the contention is that as inheritors of the historical point of view, a point of view from which incidental material has a way of becoming as important as the main body of facts, we have tended to consider as first-rate these figures in our literature who have been the subject of vast amounts of "scholarship." Poe is shown up as obscurantist and non-intellectual in spite of his pretensions to the contrary; his intellectuality is all anterior to a poem, not in it. Winters feels that Poe's crossword-puzzle mind and superficial intellectuality, together with his unorientated emotionalism, shut him out from "that vast and solid region inhabited by the major literary figures of the world, the region in which human experience is understood in moral terms and emotion is the result of that understanding, or is seen in relationship to that understanding and so judged." In addition, if we understand the nature of Poe's confusion, we come closer to an understanding not only of his American contemporaries but also of the French Symbolists and the moderns as well.

HAWTHORNE

The strictures of Hawthorne, however, illustrate Winters' position even more clearly; he is able to contrast New England Calvinism, which was plain and comprehensive, however brutal, against the foggy post-Unitarianism and Romantic intellectualism of Hawthorne's own time. Thus, in the *Scarlet Letter*, the allegorist Hawthorne found the perfect material for his use in the story of the first generation Puritans, but once having written this allegory, in which sin was clearly defined in terms of Calvinism, Hawthorne proved to be incapable of handling a moral problem at all, that is, he talked about sin but did not really know what it was. This ignorance is evident in the *Marble Faun*, which is interesting but hardly successful, a manifestation of how far the 19th century intellect had strayed from the center of Christianity, particularly medieval Christianity, in which sin is a complex matter, not an absolute, and in particular not an act predestined and damned.

HENRY JAMES

The work of Henry James, although complete and successful in contrast to the incompletion and failure of Hawthorne, is vitiated by the fact that his characters attempt to make moral choices isolated from all qualifying criteria, a fact which has focussed attention of later readers and critics on the formal aspects of his art rather than on the weight of its content, which tends to etherialize and disappear. But, Winters found the curse of the Calvinistic heritage most clearly at work in Henry Adams, who, although himself a man of the highest character, was unable to justify any principle of action; and "though an historian of great learning and of high academic distinction, he transformed the Middle Ages by a process of subtle falsification, into a symbol of his latter-day New England longing; in which, though a stylist of great power and precision, he propounded the aesthetic theory that modern art must be confused to express confusion . . ." Adams' theory of history became a symbol of his own despair.

HART CRANE AND EMERSON

The culmination of the Winters doctrine is propounded in his essay on the significance of Hart Crane's *The Bridge,* in which the given argument is trained on the most important figure of American romantic thought, Emerson. As in the attack on Adams, Winters points out that it is not enough to read or teach Emerson as a man who wrote interestingly and brilliantly about philosophic matters, but rather that Emerson must be criticized for the irresponsibility of his thinking, that his doctrines (if taken seriously) lead to moral breakdown and confusion, and that Emerson, like Adams, was saved personally from this sort of breakdown by the momentum of his heritage, his character. But Whitman, who took over Emerson's ideas wholesale, was not saved, and Hart Crane, who followed Whitman, tried to live by these ideas and as a result committed suicide. One might reply, of course, that it was not Emerson's fault that Crane committed suicide, but that is not Winters' point. Crane's death is but a symbol of another kind of death: the fact that *The Bridge* fails as a work of art. This is the prime instance of a man of great talent and intellect being so completely of his age, so much the result of post-romantic muddleheadedness, that not only was his life ruined on the personal level but his art as well, that there was a kind of suicide in his poetry, the suicide of the conscious intelligence, the decadence of the moderns.

THE WELL WROUGHT URN

In *The Well Wrought Urn,* Cleanth Brooks has gathered together and issued in book form ten of his essays in criticism. However, in the light of the discussion of the Winters' volume, this book is more interesting for its appendices than for the essays themselves. The appendix entitled, "Criticism, History, and Critical Relativism," reveals Brooks' awareness that he can not go on forever making literary judgments without the foundation of a philosophical position. Like Winters, he cannily reduces the critical relativists to the absurd position of judging each poem in terms of the poet's own sensibility; he points out, that critical absolutism is necessary, for unless a formal position is taken and maintained by critics, poetry itself will disappear and it will become necessary to accept anything as poetry. Brooks adds that this critical absolutism must embrace a system tremendously and artificially complex; and then rather improbably attacks Winters' position as implying adherence to a particular religious and philosophical dogma. But Brooks can not hold his own position without meeting the same difficulty. One can not talk about absolutism and then scorn the current supply. The proper and only meaningful answer to this problem for the Occidental is a return to the tremendously artificial complexity of Christianity, to the often neglected but ever-present rationale of Christian morality.

In the essays proper, Brooks continued his reading of certain specific poems to illustrate his contention that all language, and poetic language in particular, communicates on more than one level. His term for this multi-communication is "paradox," that is, the poet is not only saying what the words mean when they are examined literally but also he is probably saying the opposite. Brooks' readings of poems has always been most interesting; he is a good reader and often turns up meanings that many had missed, but he is so anxious to avoid what he calls the heresy of paraphrase (a single explicit reading of a poem) that the discussions of the poems are too long drawn out and circuitous. It is rewarding though to find this new critic moving out of the 17th century; besides the essays on Donne, Shakespeare, Herrick, and Milton, there are discussions of Pope, Gray, Wordsworth, Keats, Tennyson, and Yeats, an extended use of his method which should result in re-evaluations in eighteenth and nineteenth century poetry.

THE RIME OF THE ANCIENT MARINER

Robert Penn Warren's essay on Coleridge's *Rime of the Ancient Mariner* is more satisfactory as a reading of a poem than are any of the elucidations in the Brooks volume. Warren is substantially in agreement with Brooks on the matter of the multiple meanings inherent in a poem; he contends that the *Rime* is first of all a poem of "mòrals in a sacramental universe"; secondly, it is a poem of "pure imagination." In connection with the first meaning, Warren shows that Coleridge accepted the idea of Original Sin as a mystery, and that symbolically the ancient mariner committed a murder, that is, the crime of killing the albatross was committed against God, not against man. This act of the mariner's in its gratuitousness and in its perversity is not, therefore, the Aristotelian *hamartia,* the flaw in the tragic hero, but is rather like the Fall itself in being both timeless and motiveless. Warren, in developing this meaning, breaks the poem open by drawing attention to the special use in it of sunlight and moonlight to set the contrasting tones, and the significance of each kind of light as indicating what is happening or about to happen at any given moment. The ancient mariner himself is the everlasting wanderer over the face of the earth, the man who carries about within himself man's imperfection, his original sin.

On the second level of meaning, that of pure imagination, Warren is saying that the *Rime of the Ancient Mariner* is not just a pretty thing, a perfect imaginative insight, but rather that this poem represents Coleridge's basic thesis: that "deep thinking is attainable only by a man of deep feeling, and that all truth is a species of revelation." Warren feels that this idea of Coleridge's is his great contribution to modern thought; and he explains it further in adding that the truth of a work of art is implicit "in the poetic act as such, that the moral concern and the aesthetic concern are aspects of the same activity, the creative activity, and that this activity is expressive of the whole mind."

Since the *Rime* was written out of this belief and about this belief, Warren feels that the moral values and the aesthetic values merge, that the poem essentially is about "the unity of the mind and the final unity of values, and in particular about poetry itself." Unfortunately, neither Coleridge nor Warren can be allowed to officiate at this wedding of morality and aesthetics, since as we have seen above this is just the sort of thing which cancels out all values, and one is left finally with that prize piece of romantic nonsense that truth is beauty and beauty is truth. That the art fact is, in a way, an example of the truth of nature, that is, that the work of art is as true as a blade of grass is true is a correct and obvious enough statement, but having said this, the critic must not congratulate himself on having uttered a profundity; the substitution of one mystery for another only appears meaningful; actually, one has said nothing about either art or truth. Warren's analysis is, we feel, correct; the error is Coleridge's, and Warren is implicated only so far as he agrees with his own findings.

In general, though, the new critics are to be commended for having come to the position of realizing that they must take a stand and that the stand can not be a simple one; yet, with what appears to be the exception of Yvor Winters, the men known as the new critics lack the background and training for the formulation of a Christian standard, which properly must be left to philosophers, and particularly to the theologians. It is good to be able to record, however, that the intellectuals have been brought face to face with their choice and that they recognize it clearly as such, although the non-religious backgrounds of most of them make them a little shy as yet of announcing their Christianity and of accepting the heritage of the superb *architectonike* of its rationalism.

ENGLISH LANGUAGE AND LITERATURE

By Donald Nelson Koster

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GENERAL

Of course many of the most scholarly works of the present day are being published—as indeed they should be—by the university presses. The fact remains, and deserves underlining, that a good many others are being printed under the mark of one or another of the commercial publishing houses. The year 1947 saw no falling off in this respect.

Limitations of space make this survey necessarily selective. Readers are therefore advised to consult, upon its appearance, the Supplement to the *Publications of the Modern Language Association* (*PMLA*),* which will contain a quite complete bibliography.

ENGLISH LANGUAGE

Joseph Jones and E. B. Atwood provided a "Bibliography of 1946 Works on Present Day English and Phonetics" (*AS*). In *The Use of Language* (Crofts), Henry F. Pommer and William M. Sale, Jr. presented a sound discussion of the nature of language and largely accomplished the purpose of their book, which was to set forth the requirements of a clear and accurate prose style.

Albert Guerard in a provocative article evolves "Ten Levels of Language" (*ASch*). They follow: 1. Below consciousness, language as sheer reflex: the cry, the call, the groan, the sigh; 2. Subconscious speech: unformed sentences, deformed words; Joyce's *Ulysses* is used as an example of this in literature; 3. The Barely Conscious: the colloquial level of everyday speech; 4. Standard speech: good plain vernacular, without pretension; 5. Literary style: the zone of the elaborate, the lofty, the poetic; 6. Literary language totally different from the vernacular; 7. The "artificial"; 8. "Individual" language beyond the range of mere communication; 9. Free creation—as in *Finnegan's Wake;* 10. Silence.

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* Periodicals frequently referred to in the present survey are cited under the following abbreviations: *PMLA*, *Publications of the Modern Language Association of America; MP*, *Modern Philology; JEGP*, *Journal of English and Germanic Philology; SP*, *Studies in Philology; PQ*, *Philological Quarterly; ELH*, *English Literary History; HLQ*, *Huntington Library Quarterly; SAB*, *Shakspere Association Bulletin; MLQ*, *Modern Language Quarterly; JHI*, *Journal of the History of Ideas; ASch*, *The American Scholar; KR*, *The Kenyon Review; YR*, *The Yale Review; AS*, *American Speech; AL*, *American Literature.*

"The Orthography of John Bate of Sharon, Connecticut (1700-1784)" (*AS*) is a monograph by Harold Whitehall in which a detailed study is made of the interestingly original spelling of the first farrier and blacksmith of Sharon, whose recently discovered Account Book serves as the basis for the study.

The thesis that Latin is becoming a dead language even among the learned, who now hesitate to use a Latin word or phrase because they are not sure how to pronounce it, was advanced by Thomas Pyles in "The Pronunciation of Latin in English: A Lexicographical Dilemma" (*AS*). He maintains that the pronunciation of learned loan words, foreign words, and phrases from Latin is now in a transitional stage, wherein lurk many hybrid pronunciations. Esther K. Sheldon in "Walker's Influence on the Pronunciation of English" (*PMLA*) suggested that John Walker, eighteenth century lexicographer, because of his careful, logical systematization, was popular with succeeding dictionary makers and with the general public as well. The contention is made that he was the greatest single influence on English pronunciation, particularly in its American branch.

Arthur E. Hutson in "Gaelic Loan-Words in American" (*AS*) discussed words from Scottish and Irish Gaelic brought into American speech largely during the nineteenth century in the great migration (some are *puss, shebang, shenanigan, slug, slew, smithereen, shanty, hooligan*), while A. D. Weinberger gathered "Some Data and Conjectures on the History of *Hubba-Hubba*" (*AS*). "Gullah in the Stories and Novels of William Gilmore Simms" (*AS*) gave the results of an examination by J. Allen Morris of 16 Simms novels, of which nine were found to contain examples of the Gullah dialect of the Carolina Negroes.

The American Thesaurus of Slang, edited by Lester V. Berrey and Melvin Van Den Bark, was published (Crowell) in a revised edition, with a supplement of Teen Talk, Jive Jargon, and Military Slang. Delbert W. Hamilton added to the studies of military slang with his "Pacific War Language" (*AS*), a glossary of Army slang based on notebooks which he kept in the South Pacific, the Philippines, and Japan from 1944-1946.

J. R. Hulbert in "On the Origin of the Grammarians' Rules for the Use of *Shall* and *Will*" (*PMLA*) showed that there were writers before 1762 (Lowth's *Grammar*) who preferred *shall* for expressing simple futurity in the first person in independent clauses, *will* in the second and third—specifically, the authors of letters written in the period from 1650 on.

The year saw the publication of an extremely fine new dictionary, *The American College Dictionary* (Random House), edited by Clarence L. Barnhart. A very useful all-purpose volume of desk size, it has all entries alphabetically arranged, thereby doing away with the necessity for separate sections, and is based on standard American rather than British usage. Its principal disadvantage is the absence of a thumb index.

OLD ENGLISH

Originally scheduled for publication in 1946, Eleanor Shipley Duckett's *Anglo-Saxon Saints and Scholars* (Macmillan) finally made its appearance. It proved to be a book well worth waiting for, an altogether scholarly study of the place and significance in their times of four leading men of God and letters: Aldhelm of Malmesbury, Wilfrid of York, Bede of Jarrow, and Boniface of Devon.

Erika von Erhardt-Siebold offered as a solution to "Old English Riddle No. 57" (*PMLA*) the idea that the bird referred to in the riddle is the jackdaw. She established O.E. *cā as the popular onomatopoeic name for that bird in Anglo-Saxon England. "The Vocabulary of the Old English Poems on Judgment Day" (*PMLA*) was studied by Robert J. Menner, who examined the selection of words in order to determine the original dialect of Old English poems later than Cynewulf. Menner concluded that Judgment Day I is Anglian in origin, whereas Judgment Day II is clearly Saxon.

MIDDLE ENGLISH AND CHAUCER

John J. Parry's "A Bibliography of Critical Arthurian Literature for the year 1946" (*MLQ*) was of unquestionable assistance to scholars in the field. Geoffrey B. Riddehough delved into "A Forgotten Poet: Joseph of Exeter" (*JEGP*), analyzing the *Bellum Trojanum,* written in the ninth decade of the twelfth century and known to Chaucer.

"Chaucer's Final -E in Rhyme" (*PMLA*) by James G. Southworth advanced the hypothesis that final -e had disappeared from the spoken language earlier than we have hitherto believed, that Chaucer was in no way archaic, and that he had a subtler ear for delicate rhythms and poetic form than many have been willing to grant him. Robert A. Pratt's "Chaucer's Use of the *Teseida*" (*PMLA*) was a study of the English poet's use of Boccaccio's poem and stated that it formed the basic material of the *Knight's Tale* and was the source of numerous Chaucerian passages.

AGE OF ELIZABETH

A. Philip McMahon in "Sir Philip Sidney's Letter to the Camerarii" (*PMLA*) gives the full text of a letter in Latin from Sidney to the sons of Joachim Camerarii in which he promised to help them publish their father's works, while Helen A. Kahin in "Jane Anger and John Lyly" (*MLQ*) suggests that Lyly's *Euphues His Censure to Philautus* incited *Jane Anger her protection for women,* a reply to a volume Jane considered defamatory to her sex.

That Guicciardini was the modern historian most admired by Sir Francis Bacon is the contention of Vincent Luciani in "Bacon and Guicciardini" (*PMLA*), which states that Bacon consulted the Italian's *Storia* more frequently than any other modern European history for illustrative instances of political behavior and that he used it as a model for his own *History of Henry VII*. "The Relation of Sherry's *Treatise of Schemes and Tropes* to Wilson's *Arte of Rhetorique*" (*PMLA*) by G. J. Engelhardt reveals the extent to which Wilson's greater work benefited from the existence of the earlier work of Sherry, and "A History of Fairfax Criticism" (*PMLA*) by Charles C. Bell examines the varied contemporary and succeeding judgments of Edward Fairfax, Elizabethan poet and translator.

Two Marlowe items were provided by Paul H. Kocher and Raymond A. Houk, the former in "Contemporary Pamphlet Backgrounds for Marlowe's *The Massacre at Paris*" (*MLQ*), showing that the dramatist's dependence on the pamphlet literature of the time was great in both the action and characterization of his crude topical drama, and the latter in "*Doctor Faustus and A Shrew*" (*PMLA*) supporting the hypothesis of a common source for Marlowe's tragedy and the anonymous *The Taming of A Shrew.*

JONSON

According to Henry L. Snuggs, study of the whole Induction to *Every Man Out of His Humour* "reveals that—contrary to the prevailing opinion—[Ben] Jonson intended to portray affected and eccentric humours which are not in accord with his own definition." The comic humours of seventeenth century drama are, then, the pseudo-humours of affection and eccentricity. This point of view is presented in "The Comic Humours: A New Interpretation" (*PMLA*). Allan H. Gilbert in "The Italian Names in *Every Man Out of His Humour*" (*SP*) says that Jonson gave his important characters Italian names because he wished thereby to tell the audience something about them and also that Florio's *A Worlde of Wordes* (1598), an Italian-English dictionary, was known to many of Jonson's readers and could be consulted by them with illuminating results. "Ben Jonson's 'Censure' of Rutter's *Shepheards Holy-day"* (*MP*) by Freda L. Townsend concludes that in Jonson's eyes Rutter had achieved a well-made play, although it defies the principle of unity of plot, and that Jonson's dramatic laws were probably original in their formulation and had little to do with ancient prescriptions. The final Jonson item was Ralph Nash's "The Comic Intent of *Volpone*" (*SP*), which argues that the serious is subordinated in the play and that Jonson was writing primarily to amuse his audience, not to give them a lesson in morals.

SPENSER

Brief accounts of the prominent officials of the province of Munster at the time Spenser was deputy clerk of the council are furnished by Alexander C. Judson in "Spenser and the Munster Officials" (*SP*), while Paul E. McLane in "Spenser's Morrell and Thomalin" (*PMLA*) presents in detail the grounds for the poet's presumed dislike of Bishop Aylmer and also suggests that Dr. Thomas Cooper, bishop of Lincoln between 1571 and 1584, is a more probable Thomalin than any Puritan would be. "Belphoebe's Misdeeming of Timias" (*PMLA*), by Allan H. Gilbert, provides an interpretation of the story of Timias, Arthur's Squire, in *The Faerie Queene*, and "Spenser's 'Faery' and 'Fairy'" (*MLQ*), by Sverre Arestad, distinguishes between the two senses in which Spenser used the term—human being and fairy—suggesting the consequent elucidation of *The Faerie Queene* that results from such a distinction.

SHAKESPEARE

A valuable "Bibliography of Shakesperiana for 1946" (*SAB*) was compiled by Samuel A. and Dorothy R. Tannenbaum, and four excellent books on the great dramatist were published during the year. Charles Norman, author of *The Muses' Darling*, a competent biography of Marlowe, did an equally good job on *So Worthy a Friend: William Shakespeare* (Rinehart). Although he romanticizes at times, his foundation is sound and his book most readable; Shakespeare the man and the dramatic poet emerges from its pages. A more scholarly study was *As They Liked It* (Macmillan), by Alfred Harbage, an engaging essay in which Professor Harbage emphasizes that Shakespeare accepted and worked within the prevailing Christian moral code of his age. *Prefaces to Shakespeare, Vol. 1* (Princeton), by Harley Granville-Barker, is the first American edition of the *Prefaces*, which were written over a 20-year span, and *Comic Characters of Shakespeare* (Macmillan), by John Palmer, is the first American printing of an English work which contains five studies—of Berowne [Biron], Touchstone, Shylock, Bottom, and Beatrice and Benedick.

Lily B. Campbell, in "Bradley Revisited: Forty Years After" (*SP*), evaluates Bradley's *Shakespearean Tragedy* (1904) and finds his criticism warped by his nineteenth century mind.

Articles treating with individual plays are several. In "Much Ado About an Unpleasant Play" (*SAB*), E. J. West analyzes his antipathy to *Much Ado About Nothing*. He considers the plot unsavory and joins Shaw in condemning it as "peculiarly venomous." Raymond A. Houk, in "Shakespeare's *Shrew* and Greene's *Orlando*" (*PMLA*), contends that parallels with Robert Greene's play support the theory that Shakespeare in 1592-93 may have composed preliminary sketches for *The Taming of the Shrew*, while Michel Poirier in "Sidney's Influence Upon *A Midsummer Night's Dream*" (*SP*) attempts to show that Shakespeare made considerable use of Sidney's *Arcadia* and *Defence of Poesie* in the writing of his play. John E. Hankins, while contending in "Caliban the Bestial Man" (*PMLA*) that Caliban is Shakespeare's most original character, states that "even he has literary forebears." "Symphonic Imagery in *Richard II*" (*PMLA*) by Richard D.

Altick is a study of the tragedy which concludes that it is made more moving by the style, "half rhetorical, half lyrical," in which it is told.

"Character in Relation to Action in *Othello*" (*MP*) by Moody E. Prior attempts to establish the reciprocal relationship between character and action in Shakespeare's major tragedies and uses *Othello* as an illustration. Depreciated is the criticism which reduces Shakespeare's characters to simple linear proportions. That Shakespeare in his treatment of the Roman attitude toward Antony and Cleopatra may have been influenced by Horace's "Cleopatra Ode" and his Epode IX and that his characterization of Cleopatra owes much to the Latin poet is the burden of Perry D. Westbrook's "Horace's Influence on Shakespeare's *Antony and Cleopatra*" (*PMLA*). "Mr. Wilson's *Henry IV*, Parts I and II" (*SAB*) by R. W. Babcock is an analysis of J. Dover Wilson's new *Henry IV* texts, which the writer terms "somewhat conservative and distinctly deferential" and quite disappointing. Paul A. Jorgensen in "Accidental Judgments, Casual Slaughters, and Purposes Mistook: Critical Reactions to Shakespeare's *Henry the Fifth*" (*SAB*), examines much of the critical opinion on Henry and shows that a significant difference exists between Shakespeare's professed intention to idealize and glorify his hero and the repulsion felt toward him by most critics because of his "gross vices," his snobbery, his efficiency, and his worldliness.

SEVENTEENTH CENTURY

That Donne had a persistent, even life-long wish to die, and that a full understanding of that wish throws much light on his temperament, work, and philosophy, is the thesis of "The Death Wish of John Donne" (*PMLA*) by Donald Ramsay Roberts. Phillip Shaw states "The Position of Thomas Dekker in Jacobean Prison Literature" (*PMLA*) is one of writing or collaborating on about half of the entire output of Jacobean works describing London's prisons, while Willa McClung Evans in "Lovelace's Concept of Prison Life in *The Vintage to the Dungeon*" (*PQ*) tries to show that the concept of such life mirrored in that work was not the poet's unconsidered reaction to his immediate environment when he was committed to the Gatehouse in 1642, but the adaptation of certain scenes and ideas set forth in Cartwright's *The Royall Slave*. Grover Smith's "The Influence of Sir John Hayward and of Joshua Sylvester upon William Drummond's *Cypresse Grove*" (*PQ*) establishes the indebtedness of Drummond's essay to Hayward's *Sanctuarie of a Troubled Soule* and to Sylvester's *Memorials of Mortalitie*. Through copious use of parallel passages, John S. Weld in "W. Bettie's *Titana and Theseus*" (*PQ*) tries to prove that Bettie's little known euphuistic novel was a borrowing in large measure from Green's *Pandosto*, the source also of *A Winter's Tale*.

"The Latin Element in Henry Vaughan" (*SP*) by Philip Macon Cheek praised Vaughan as a man of wide and varied erudition, who, as a student of the Latin classics, found inspiration in them for his secular poetry and his prose. Ruth Wallerstein's "On the Death of Mrs. Killigrew: The Perfecting of A Genre" (*SP*) was a close consideration of Dryden's early elegy on Hastings and his mature ode *To the Memory of Mrs. Killigrew* as revealing the poet's evolution out of the dying metaphysical age into full neo-classicism without any dimming of his sense of the English tradition. George B. Parks in "John Evelyn and the Art of Travel" (*HLQ*) examined the contribution of Evelyn's European travel to making him the savant he was. And in "The Jonsonian Tradition in the Comedies of Thomas D'Urfey" (*MLQ*) C. B. Graham's scrutiny of D'Urfey's 20 comedies showed that D'Urfey added materially to the list of allusions to Jonson in the Restoration Period; that he portrayed humour-characters, some closely resembling well known Jonsonian types; and that ten of his comedies afford examples of episodic humour-study.

MILTON

A somewhat smaller amount of Miltonic study than usual was published during 1947. Ben Gray Lumpkin in *"Fate in Paradise Lost"* (*SP*) observed that there are two opposed meanings of the word "Fate" in Milton's great epic: on the one hand, a divine decree or the will of God; and on the other, an active, blind force superior to and controlling God. In his "Milton's *Lycidas* and Two Latin Elegies by Giles Fletcher, The Elder" (*SP*), Warren B. Austin commented upon the probable influence of Fletcher's *Adonis* and *De Obitu Clarissimi Viri* (an elegy on Walter Haddon, the great Ciceronian) on Milton's poem. "Milton's 'Brief Epic'" (*SP*) by Charles W. Jones was an explanation, in the light of Milton's reading, why Milton termed the Book of Job an "epic" in his *Reason of Church Government,* while Edward S. LeComte's "Milton's Attitude towards Women in the *History of Britain*" (*PMLA*) was a study of the first four books of the History which found Milton speaking out on the inferiority and proper subjection of women. Paul Bunyan Anderson in "Anonymous Critic of Milton: Richard Leigh? or Samuel Butler?" (*SP*), argued that Butler rather than Leigh was the author of the three anonymous pamphlets containing the most cogent criticism of Milton put in print by any of his contemporaries: *The Character of the Rump, The Census of the Rota upon Mr. Milton's Book, Entituled, A Ready and Easie Way to Establish a Free Commonwealth,* and *The Transproser Rehears'd.*

EIGHTEENTH CENTURY POETS

"The Poetry of Thomas Gray" (*YR*) by Lord David Cecil constituted an enthusiastic re-appraisal of Gray's poetry, through which Gray is said to "show himself as much an individual as Blake or Byron."

Two volumes on Blake appeared in 1947: *A Man without a Mask* (Transatlantic Arts), a sociological approach by J. Bronowski to the poetry of Blake, and *The Portable Blake* (Viking) edited by Alfred Kazin, whose introduction sums up the poet as "a Christian who hated the churches" and "a revolutionary who abhorred the materialism of the radicals."

Wallace Cable Brown in "Johnson As Poet" (*MLQ*) refuted the notion that Johnson wrote his poetry "with his left hand." He maintained that *The Vanity of Human Wishes,* in particular, is one of the great poems of the language and reveals its author as a master of the heroic couplet.

EIGHTEENTH CENTURY PROSE WRITERS

Dr. Johnson's famous biographer, James Boswell, commanded a fair share of attention in 1947. A full length biography of him, ably and accurately written, was produced by D. B. Wyndham Lewis, entitled *The Hooded Hawk: or, The Case of Mr. Boswell* (Longmans, Green), while *The Portable Johnson and Boswell* (Viking) was liberally Boswell and provided a good treatment of Boswell's technique as a biographer by editor Louis Kronenberger. "Boswell's Interviews with Gottsched and Gellert" (*JEGP*) by Daniel V. B. Hegeman was the record of Boswell's brief association with the two Leipzig professors as found mostly in his diaries.

A book based on solid research, yet entertainingly written, is Mary Alden Hopkins' *Hannah More and Her Circle* (Longmans, Green). Hannah More was one of Dr. Johnson's special pets and was pronounced by him to be "the most powerful versificatrix in the English language." Her religious tracts sold by the millions, and she numbered Walpole, Wilberforce, Zachary Macaulay, and John Wesley among her friends. Ralph M. Wardle's "Mary Wollstonecraft, *Analytical* Reviewer" (*PMLA*) traced the development of Mary's mind through the course of her hundreds of reviews for the *Analytical,* and Austin Wright in "The Varacity of Spence's *Anecdotes*" (*PMLA*) after examination of the character, reputation, and methods of the author concluded that the *Anecdotes* may be accepted as a predominantly veracious record of what the compiler actually heard. In "Neo-Classical Criticism of the Ode for Music" (*PMLA*), Robert M. Myers expounded the ten distinct qualities required by neo-classical critics of any perfect ode for musical setting.

Oskar Seidlin in "Laurence Sterne's *Tristram Shandy* and Thomas Mann's *Joseph the Provider*" (*MLQ*) suggested a spiritual affinity between the two authors. According to his view, both possess perfectly the attitude of irony, think similarly on the question of identity of space, of time, of individuality, and are met in wit. Two Fielding items are Robert M. Wallace's "Fielding's Knowledge of History and Biography" (*SP*), which concludes that examination of the novelist's education, library, and periodicals reveals that he was not concerned primarily with the Greek and Latin epic poets and critics but was inclined more strongly to the historians and biographers, and Arthur L. Cook's "Henry Fielding and the Writers of Heroic Romance" (*PMLA*), which discovers interesting similarities in principles between Fielding and the writers of heroic romance, such as Mlle. de Scudéry.

WORDSWORTH AND COLERIDGE

There are lone items for Wordsworth and Coleridge. In "Milton's Influence on Wordsworth's Early Sonnets" (*PMLA*) Bard McNulty contends that Wordsworth acknowledged a greater debt to Milton than he owed, and in "Hartley, Pistorius, and Coleridge" (*PMLA*), Hoxie N. Fairchild shows a relationship between the poet's *Religious Musings* and Hartley and Pistorius.

BYRON

The most considerable Byron contribution of 1947 is *John Bull's Letter to Lord Byron* (Oklahoma) edited by Alan Lang Strout, in which the text of the famous letter is printed along with an extended introduction that treats the background in full, gives the proof of John Gibson Lockhart's authorship, and discusses Lockhart's attitude toward Byron. T. G. Steffan published two articles, "The Byron Poetry Manuscripts in the Library of the University of Texas" (*MLQ*), a detailed description of the manuscripts, and "Byron At Work on Canto I of *Don Juan*" (*MP*), an examination of the letters of Byron and his circle, of the manuscript, and of various psychological forces that controlled composition. Bertrand Evans in "Manfred's Remorse and Dramatic Tradition" (*PMLA*), expresses the belief that Byron followed the technique of the Gothic playwrights who preceded him, but extended it to the very end of his drama, thereby motivating his hero's remorse without impeaching Manfred as hero.

KEATS

An important volume for students of English Romantic poetry is *Keats and the Daemon King* (Oxford) by Werner William Beyer. The main chapters examine in detail the influence of the German writer Christoph Martin Wieland on Keats' poetry. Considering "The Meaning of 'Fellowship with Essence' in *Endymion*" (*PMLA*), Newell F. Ford holds that this obscure phrase and the passage in which it is found comprise a young poet's description of imaginative "empathy." Clarence D. Thorpe in "Keats and Hazlitt: A Record of Personnal Relationship and Critical Estimate" (*PMLA*) finds the relationship between the two men to have been one of mutual respect and friendship, Keats' opinion of Hazlitt never diminishing, as it did with so many other contemporary writers.

SHELLEY

A decided boon to Shelley scholars is the publication of *Mary Shelley's Journal* (Oklahoma), edited by Frederick L. Jones. The book admirably supplements Professor Jones' two-volume edition of Mary Shelley's letters, which appeared a few years ago. Two other contributions by the same scholar are "Shelley's *On Life*" (*PMLA*) and "The Vision Theme in Shelley's *Alastor* and Related Works" (*SP*). The first states that the fragmentary essay *On Life* is very significant because it is the prose basis for the *Hymn to Intellectual Beauty,* is saturated with the influence of Wordsworth, and contains Shelley's first definite announcement of his rejection of a materialistic philosophy and adoption of a spiritual "intellectual system." The second tries to present a clear picture of the vision theme used by the poet in *Alastor* and other works, and of its place in his life and development. Evan K. Gibson in *"Alastor:* A Reinterpretation" (*PMLA*) contends that past critics of the poem have erred chiefly in overpersonification of the word *spirit.* "The Meaning of Shelley's *Mont Blanc*" (*PMLA*), by I. J. Kapstein, is an analysis of the poem which concludes that with it and subsequent to it, one discovers in Shelley's work his steadily increasing confidence in "the epistemology of idealism."

NINETEENTH CENTURY PROSE

"Victorian Bibliography for 1946" (*MP*), edited by Austin Wright, lists the noteworthy publications for that year that have a bearing on English literature of the Victorian period.

A somewhat one-sided account is *John Ruskin and Effie Gray: The Story of a Marriage* (Scribner) edited by Admiral Sir William James. The book is a selection of hitherto unpublished letters by which Sir William tries to paint Ruskin as an unnatural monster in his relations with the woman who succeeded in having her marriage to him annulled after six years. The most detailed life of Thackeray yet to appear is Lionel Stevenson's *The Showman of Vanity Fair* (Scribner). A chronological account, it is a bit short on criticism and contains no bibliography.

In great praise of Anthony Trollope is Chauncey Brewster Tinker's "Trollope" (*YR*), an essay evaluating the novelist, concerning whom the conclusion is drawn, "Of all the great Victorian novelists, he is the most engaging because of his very simplicity." A good introduction to the writer is *The Trollope Reader* (Oxford) edited by Esther Cloudman Dunn and Marion E. Dodd with an inclusive preface.

"Character-types of Scott, Balzac, Dickens, Zola" (*PMLA*) by Jared Wenger is an analysis of the character creations of the four novelists according to a theatrical "type-casting" system, and "Sherlock Holmes Borrows A Plot" (*MLQ*), by John Robert Moore, reveals Conan Doyle's dependence on Thackeray's *Miss Shum's Husband* for his story *The Man with the Twisted Lip.*

In *A History of the Late Nineteenth Century Drama, 1850-1900,* (2 vols.) (Macmillan), Prof. Allardyce Nicoll completed his task of writing a history of the English drama from the reopening of the theatres in 1660 to the close of the nineteenth century. An excellent, scholarly book, it includes a fine study of Shaw and good analyses of Wilde, Jones, and Pinero.

NINETEENTH CENTURY POETRY

"Tennyson's Merlin" (*SP*) by Gordon S. Haight suggested that Scott was the "Wizard of the North" who might have first inspired Tennyson to follow the "Gleam," or "the higher poetic imagination." Herbert E. Greene in "Browning's Knowledge of Music" (*PMLA*) printed an unpublished letter from Browning to the Rev. Henry G. Spaulding of Boston attesting to the poet's training in and knowledge of music proper. Alfred M. Terhune published *The Life of Edward Fitzgerald* (Yale), a witty, scholarly, and complete biography, the most comprehensive work yet done on the translator of old Omar.

"The Poetic Theory of Gerard Manley Hopkins" (*PQ*) was examined in two articles of that title, by Selma Jeanne Cohen and John K. Mathison.

TWENTIETH CENTURY

A challenging and vividly written book is William York Tindall's *Forces in Modern British Literature, 1885-1946* (Knopf). Shaw, Wells, Kipling, Hardy, Conrad, Yeats, Lawrence, Synge, Eliot, Housman, and others are treated in this history of British writing of the past 60 years. In *The Poetry of Thomas Hardy* (Columbia), James Granville Southworth provides an analysis of Hardy's poetic artistry. His thesis is that Hardy can not be ranked with the great poets because "his lark never lost itself in the light." *The Portable Conrad* (Viking), edited by Morton D. Zabel, has a good if not brilliant introduction, and *Frank Harris* (Odyssey), by E. Merrill Root, is a highly sympathetic biography in which Harris is pictured as a great writer and a great man. Hugh Kenner in *Paradox in Chesterton* (Sheed and Ward) sees G.K.C. as an original and profound thinker.

Letters of James M. Barrie (Scribner), edited by Viola Meynell, is a collection commencing in the early 90's and ending with a deathbed note to the author's valet in 1937. The letters reflect the almost morbid shyness of the Scottish dramatist and disclose little of his inner self. A more interesting book is *Lady Gregory's Journals, 1916-1930* (Macmillan), edited by Lennox Robinson, in which we are taken behind the scenes at the Abbey Theatre, through the Irish Civil War, and into the company of Shaw, Yeats, and others.

Two Synge items were published by David H. Greene—"The Shadow of the Glen and the Widow of Ephesus" (*PMLA*)—presenting clear evidence that Synge modeled his play on an authentic Irish folk tale still current in the west of Ireland, and *"The Tinker's Wedding,* A Revaluation" (*PMLA*) holding that, though an artistic failure, the play has real value as an important connecting link between the one-act plays of Synge's apprenticeship and the three-act plays of his maturity. William Irvine wrote two articles on Shaw. In "Shaw, the Fabians, and the Utilitarians" (*JHI*) he says: "His Life Force theory erects anarchy into an ethics and a philosophy." And in *"Man and Superman,* A Step in Shavian Disillusionment" (*HLQ*) he calls the play "fundamentally . . . a pronouncement, full of desperate pessimism and even more desperate optimism, on the progress of social reform."

An excellent addition to critical writing on Joyce is Richard M. Kain's *Fabulous Voyager: James Joyce's "Ulysses"* (Chicago), which serves as a guide to the various themes that run through the Joyce masterpiece. As for *The Portable James Joyce* (Viking), edited by Harry Levin, it includes an enlightening introduction and a splendid selection except that there are only 41 pages from *Ulysses*. *The Portable D. H. Lawrence* (Viking) also contains a good selection and a quite able introduction by the editor, Diana Trilling.

Charles R. Sanders provided "A Chronological Check List of Lytton Strachey's Writings" (*MP*), and Glenway Wescott in an article in *Harper's Magazine* entitled "Somerset Maugham and Posterity" expressed the belief that Maugham's "best books, perhaps eight or ten volumes, are better than almost anyone's today, and will endure for posterity." Charles J. Rolo, writing in *The Atlantic Monthly* on "Aldous Huxley," concluded: "The tale his books tell is a twentieth-century Pilgrim's Progress. . . . He echoes our frustrations, articulates our dilemmas, chronicles our struggle with the Janus-headed monster that has Time on one face and Ego on the other. He has come close to writing a biography of the ideas of modern man." "The Pieties of Evelyn Waugh" (*KR*), by Donat O'Donnell, was an analysis of Waugh's religion, in which the main emotional constituent was found to be a deep English romanticism. Says the author: "In Mr. Waugh's theology, the love of money is not only not the root of all evil, it is a preliminary form of the love of God."

AMERICAN LITERATURE

Alfred Owen Aldridge in "Jonathan Edwards and William Godwin on Virtue" (*AL*) demonstrated the influence of the Puritan divine's theories of virtue and of will on the British economist, while Philip Marsh in "Jefferson and Freneau" (*ASch*) told the story of Freneau's editorship of the *National Gazette,* founded with Jefferson's backing as the voice of Jeffersonian Republicanism, and of the relationship between the poet and the future president. Writing on "Cooper's *The Crater*" (*AL*), Harold H. Scudder concluded that there now seems to be evidence that Cooper's plot was in part factual and that Cooper was also making a defense of the newly announced economic views of his former publisher, Henry C. Carey. The same author contributed "Cooper and the Barbary Coast" (*PMLA*), pointing out that the novelist made use in *Homeward Bound* of Captain Judah Paddock's narrative of adventure which he had found already in print.

Arlin Turner suggested four "Sources of Poe's *A Descent into the Maelstrom*" (*JEGP*): the *Encyclopaedia Britannica* article on the Maelstrom; the narrative of an American sea captain in *The Mariner's Chronicle;* "Le Maelstrom" an anonymous story in *Le Magasin Universel* for April 1836; and the *Britannica* article on "Whirlpool." "Poe and Mesmerism" (*PMLA*) by Sidney E. Lind advanced the belief that Poe intended *Mesmeric Revelation* and *The Facts in the Case of M. Valdemar* as serious fiction, but that when they were greeted with enthusiasm by mesmerists and spiritualists and with incredulity by skeptics, he declared them to be hoaxes in order to capitalize upon the attendant publicity.

VAN WYCK BROOKS

The Times of Melville and Whitman (Dutton) by Van Wyck Brooks is the fourth volume of his series on American literary history and presents the era from 1840 to 1890. Done in Brooks' familiar style, there are chapters on Irving's New York, on Philadelphia, the South, the Middle West and the Far West, three chapters on Whitman, two on Melville, two on Mark Twain, and one on Bret Harte. Other writers given marked attention are Constance Fenimore Woolson, Sidney Lanier, Joel Chandler Harris, Miss Murfree, and George W. Cable. Despite Brooks' vivid account, one could wish for more specific documentation of his materials. Charles Olson's *Call Me Ishmael* (Reynal and Hitchcock) presents the largely intuitive thesis that Melville had the primal experience of space (the immense Pacific) and this is what he gained from his whaling voyage. *Moby Dick* is the magnification of Bigness at the cost of humanity. Willie T. Weathers' "Whitman's Poetic Translations of His 1855 Preface" (*AL*) reveals the manner in which Whitman extracted from his statement of poetic theory phrases and lines which he scattered through *Leaves of Grass* in subsequent editions.

THOREAU, HOLMES, LOWELL

Painting Thoreau as at heart an adventurer who became an economist in order that he might adventure further, James McBride Dabbs in "Thoreau: The Adventurer As Economist" (*YR*) says: "Thoreau kept his eye on the end. He knew what he wanted—life the adventure—and he studied how best to get it." A biography of Dr. Oliver Wendell Holmes done with objectivity and treating both the literary and scientific sides of his career most adequately is Eleanor M. Tilton's *Amiable Autocrat* (Henry Schuman). Kathryn Anderson McEuen examines "Lowell's Puns" (*AS*), which comprised a large part of his wit and humor. Correspondence of the Southern poet Paul Hamilton Hayne is the subject of "Whittier and Hayne: A Record of Friendship" (*AL*) by Max L. Griffin and of "Paul Hamilton Hayne to Dr. Francis Peyre Porcher" (*SP*) by Richard Beale Davis. The first article discusses the bond between the two poets as revealed in an exchange of letters, and the second puts into print seven letters from Hayne to Dr. Porcher between 1864 and 1873 which tell of his poetic labors, his religious doubts, his critical opinions, and his publishing difficulties.

MARK TWAIN

The year saw continued interest in America's most famous humorist. *Mark Twain in Nevada* (Scribner), by Effie Mona Mack, treats the three years following Clemens' arrival in Nevada in 1861 as secretary to his brother Orion, the Secretary of the new Territory. "The Love Letters of Mark Twain," edited by Dixon Wecter, the recently appointed Literary Executor of the Mark Twain Estate, appeared in *The Atlantic Monthly*. The first batch of the hitherto unpublished correspondence of Sam Clemens, most of the letters are to his fiancée, Olivia Langdon, and reveal Sam as a tender if occasionally bantering lover. Leon T. Dickinson in "Mark Twain's Revisions in Writing *The Innocents Abroad*" (*AL*) showed how the book differs from the *Alta California* letters and what Clemens did to make it different, while Fred W. Lorch in "Mark Twain's Sandwich Islands Lecture at St. Louis" (*AL*) printed the lecture with an account of its reception and also Clemens' letter ballyhooing it to the editor of the *Sunday Republican*.

LEW WALLACE AND OTHER MIDWESTERNS

"Ben-Hur" Wallace (California) by Irving McKee is a lively account of Lew Wallace and his times, and *Edward Eggleston* (King's Crown) by William Peirce Randel is a competent biography of the author of *The Hoosier Schoolmaster*, revealing Eggleston as an honest man whose greatest fear was that of being overcome by illusion. Nathalia Wright examined "The East Tennessee Background of Sidney Lanier's *Tiger-Lilies*" (*AL*) and found it accurate, while George J. Becker in "Albion W. Tourgee: Pioneer in Social Criticism" (*AL*) evaluated the writings of Tourgee and stated that "his efforts as a pioneer novelist in the uncharted field of social criticism are worthy of continued attention" rather than of the neglect which has been their lot. Publication of *The Journals of Francis Parkman* (Harper) edited by Mason Wade was the result of Wade's discovery of the long-missing journals in Parkman's attic study, closed since the historian's death in 1893.

HENRY ADAMS

Harold Dean Cater edited *Henry Adams and His Friends* (Houghton Mifflin), a collection of unpublished letters with an informative introduction in which the reasons for and effects of Mrs. Adams' suicide are discussed in an open and salutary manner, and Richard F. Miller in "Henry Adams and the Influence of Woman" (*AL*) asserted that, more than any other man of his age, Adams sought to understand Woman.

HOWELLS AND JAMES

Scrutiny of *A Chance Acquaintance*, *A Foregone Conclusion*, and *Their Wedding Journey* led William M. Gibson to conclude in "Materials and Form in Howells's First Novels" (*AL*) that the novelist's formula was simply to incorporate ideas and incidents which he had worked out embryonically in his varied, numerous early writings. An event of first importance to modern literature was the publication of *The Notebooks of Henry James* (Oxford), edited by F. O. Matthiessen and Kenneth B. Murdock. All of his novels are mentioned, some in great detail, in these notebooks. In *The James Family* (Knopf), Professor Matthiessen selected from the writings of Henry James, Sr., William, Henry, and Alice, the passages that reveal most clearly the characters of the various members of the family.

EDITH WHARTON AND OTHERS

Portrait of Edith Wharton (D. Appleton-Century) by Percy Lubbock sketches Henry James' most gifted disciple through a series of brief impressions written by various friends of Mrs. Wharton and woven together by the author to form a unified whole. The seventh book in the Makers of Modern Literature series. *Edwin Arlington Robinson* (New Directions), by Yvor Winters, though systematically and intelligently done, suffers from the absence of sufficient quotation of the poetry. *George Ade* (Bobbs-Merrill), by Fred C. Kelly, was a pleasant eulogy of the humorist by a close friend but was lacking in analysis of Ade's work. Robert Penn Warren entered into a profound analysis of "Hemingway" (*KR*) in which he found a similarity between Wordsworth and Hemingway "on the grounds of a romantic anti-intellectualism." "Action As Passion: *Tristan* and *Murder in the Cathedral*" (*KR*), by Francis Fergusson, was a consideration of Wagner's and Eliot's dramas, both of which the author viewed as taking "Passion" as the clue to life and dramaturgy.

Books and articles of a more general nature dealing with American literature included *The Shapers of American Fiction, 1798-1947* (Dutton) by George Snell, who classifies our fiction writers into the dominant strains of Romantics, Apocalyptics, Temperamentists, and Realists. Frank Luther Mott in *Golden Multitudes* (Macmillan) did a pioneer study of America's best selling books from Michael Wigglesworth's *Day of Doom* to *Forever Amber* and *Brave Men,* analyzing what makes a best seller, and providing an excellent list of best and better sellers through the years. Maxwell Geismar in *The Last of the Provincials: The American Novel, 1915-1925* (Houghton Mifflin) discussed in lengthy essays H. L. Mencken, Sinclair Lewis, Willa Cather, Sherwood Anderson, and F. Scott Fitzgerald as presenting the main historical motif of the period: the final conquest of the American town. *A Southern Vanguard* (Prentice-Hall) edited by Allen Tate was the John Peale Bishop Memorial Volume, an anthology of young Southern writers with a preface by the editor. *"Not Men:* A Natural History of American Naturalism" (*KR*) by Malcolm Cowley advanced an interesting analysis of the movement spearheaded by Frank Norris and Theodore Dreiser and numbering such writers as Lewis, Farrell, Dos Passos, Sinclair, Wright, Steinbeck, and O'Neill. Almost all of them Cowley finds defective in style, but "for all their faults . . . embarked on a bolder venture than those other writers whose imaginations can absorb nothing but legends already treated in other books, prepared and predigested food."

MISCELLANEOUS

Books and articles which defy ready classification include *Wordsworthian and Other Studies* (Oxford) by Ernest De Selincourt, a volume of eight essays, two on Wordsworth. Perhaps best are "Landor's Prose," "Walt Whitman," and "The Art of Conversation." *Ladies of Literature* (Hastings House) by Laura L. Hinkley contained six biographical and critical studies—Charlotte and Emily Brontë, Fanny Burney, Jane Austen, Elizabeth Barrett Browning, and George Eliot. Ellery Sedgwick, former editor of *The Atlantic Monthly,* in *Atlantic Harvest* (Little, Brown) chose selections of 46 authors from the period of his editorship and more than 40 years before and prefaced the reprinting of their work with a pleasant introduction. The first attempt to outline on a broad basis the origin and development of modern drama came in *A History of Modern Drama* (D. Appleton-Century), edited by Barrett H. Clark and George Freedley. Among others, the drama of Britain and the United States in the past century is reviewed, and the reading lists are excellent. A provocative article was provided by Robert M. Coates, "The State of the Novel" (*YR*). The modern novel suffers, according to Coates, "because it has abandoned its true strength, which is poetry, and is being drawn into the anecdotal, which is its weakness." He places the blame largely on the fact that our novelists write with one eye on the movie possibilities of their work. A suggestion that poets who write in the Symbolist manner should provide notes to their poems so that they shall not run the risk of being grievously misunderstood was advanced by Richmond C. Beatty in "The Heritage of Symbolism in Modern Poetry" (*YR*).

GERMANIC LANGUAGES AND LITERATURES

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BIBLIOGRAPHY

The most complete and reliable current bibliography for the Germanic languages and literatures is that compiled annually by Henry W. Nordmeyer for the *PMLA** Supplement. While this includes only writings of Americans, that by J. G. Kunstmann "Recent Literature of the Renaissance: D. Germanic Languages," (*SP*, 44, 346-381), records the productions of foreign scholars as well. The *GR* and *MLN* list books received. The *AGR* contains interesting and illuminating information concerning early German settlers in America and also biographical accounts of Americans of German origin who have made noteworthy contributions to American civilization. It also brings in the April issue (pp. 36-39) a bibliography "Americana Germanica, 1946." The appended "Bibliography of German Printings in the United States, 1946" lists 25 titles. L. M. Price lists "Anglo-German Literary Bibliography for 1946" (*JEGP*, 46, 295-296). The *ASR* represents the interests of Americans of Scandinavian origin in noting the achievements of Scandinavians in the United States and in cultivating literary and scholarly connections with the mother country. It also emphasizes current bibliography of Scandinavian Americana.

LITERARY CRITICISM

Significant among the articles noted in this category are the following: Ernst A. Philippson, "Ueber das Verhältnis von Sage und Literatur, mit deutschen Beispielen, besonders aus der Rheinromantik" (*PMLA*, 62, 239-261); Ignace Feuerlicht, "Vom Wesen der deutschen Idylle" (*GR*, 22, 202-217); Wolfgang Weilgart, "Creative Tensions, a Tentative Typology of the Creative Mind" (*MfdU*, 39, 178-183); John R. Frey, "Deutsche Epiker der Gegenwart über die Kunst der Erzählung" (*MfdU*, 39, 373-388); F. K. Richter, "Deutsches Schrifttum seit dem Kriegsende" (*MfdU*, 39, 255-259); W. P. Friederich, "Late Renaissance, Baroque, or Counter Reformation?" (*JEGP*, 46, 132-143) proposes the last title as the most appropriate designation for this literary period, at least for Germany.

Two larger works deserve special mention: Paul Reiff, *Die Aesthetik der deutschen Frühromantik*, ed. by Theodor Geissendoerfer (Univ. of Ill. Press, Urbana, 1946, 305 pp.), and Helen Meredith Mustard, *The Lyric Cycle in German Literature* (King's Crown Press 1946, 276 pp.). The former, a posthumous work, whose Swiss-German author had taught at several American universities before his death in 1924, attempts to understand the nature of early German Romanticism, especially through aesthetics. The thorough survey by Miss Mustard makes it strikingly clear that an acquaintance with a whole cycle is necessary for the interpretation of the individual poem. Dr. Samuel Singer, of the University of Bern, treats the problem: "Dogma und Dichtung des Mittelalters" (*PMLA,* 62, 861-872).

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* Abbreviations: *AGR—American-German Review, ASR—American Scandinavian Review, GQ—German Quarterly, GR—Germanic Review, JEGP—Journal of English and Germanic Philology, MfdU—Monatshefte fur deutschen Unterricht, MLN—Modern Language Notes, MLQ—Modern Language Quarterly, PMLA—Publications of the Modern Language Association, SP—Studies in Philology, SS—Scandinavian Studies.*

Here we can perhaps appropriately mention a collective publication which deserves the attention of all scholars and teachers of German: *Deutsche Beiträge zur geistigen Ueberlieferung,* issued by the Department of Germanic Languages and Literatures at the University of Chicago and edited by Arnold Bergstraesser (U. of Chicago Press, 1947, pp. IX, 252). Among the articles we note especially the following: Wilhelm Pauck, "Martin Luthers Glaube"; Matthijs Jolles, "Das religiöse Jugendbekenntnis Lessings"; Arnold Bergstraesser, "Der Friede in Goethes Dichtung"; Werner Richter, "Schiller und die Nachwelt"; Herbert Steiner, "Erinnerung an Hofmannsthal"; Fritz K. Richter, "Ernst Wiecherts Hirtennovelle."

EARLY LITERATURE AND LANGUAGE

For books and articles which treat distinctly linguistic aspects of the Germanic languages, especially of the early periods, the reader is referred to the article in this volume by my colleague, George S. Lane, "Indo-European Linguistics." A stimulating reexamination of the linguistic field of Germanics is presented by Arno Schirokauer, "Neue Probleme der deutschen Philologie" (*JEGP,* 46, 117-131). W. P. Lehmann, "Notes on the 'Hilderbrandslied' " (*MLN,* 62, 530-539) presents plausible emendations. R-M. S. Heffner, "The Third Basel Recipe, Ba III" (*JEGP,* 46, 248-253) offers additional interpretations. With increased interest in the question of authenticity, we welcome, as a basis for future study, Edwin H. Zeydel's, "A Chronological · Hrotsvitha Bibliography through 1700 with Annotations" (*JEGP,* 46, 290-294). We have seen only the few following articles on the Middle High German period: Ernst Rose, "Problems of Medieval Psychology as Presented in the *klein gemahel* of Heinrich the Unfortunate" (*GR,* 22, 182-187); George Nordmeyer, "Helmbrecht's Souveniers" (*MLQ,* 8, 211-216); Carl Selmer, "The Anonymous Late-MHG Poem *ain gemaine lere* and the Benedictine Rule" (*JEGP,* 46, 28-37).

A basic work on the medieval proverb is that by the editor of this survey, Richard Jente, *Proverbia Communia, a Fifteenth Century Collection of Dutch Proverbs, together with the Low German Version, Edited with Commentary* (Indiana University Publications, Folklore Series, no. 4, Bloomington, 1947, pp. 334).

Arno Schirokauer, "Luthers Arbeit am Aesop" (*MLN,* 62, 73-84) emphasizes the high literary quality of the German translation which unfortunately remained but a fragment. W. Kurrelmeyer has continued his contributions to "Early Sixteenth Century Lexicography" (*MLN,* 62, 289-299).

Clair Hayden Bell has produced an extensive monograph *Georg Hager, a Meistersinger of Nurnberg, 1552-1634* (Univ. of Cal. Publications in Modern Philology, vol. 39, Berkeley and Los Angeles, Univ. of Cal. Press, 1947, pp. XIX, 431). Curt von Faber du Faur has brought to light interesting information on the chief work of the eccentric Quirin Kuhlmann (1651-1689), who suffered such a cruel fate because of his religious zeal: "Die Keimzelle des Kühlpsalters" (*JEGP,* 46, 150-163). Georg K. Anderson has reprinted a unique German broadside version of the Wandering Jew theme, ca. 1694: "Joseph Krantz, Twin of Ahasverus" (*GR,* 22, 188-201).

EIGHTEENTH CENTURY

An extensive treatment of freemasonry in Germany during this period, when many distinguished literary leaders were its followers, has been presented by Heinrich Schneider, *Quest for Mysteries, the Masonic Background for Literature in Eighteenth Century Germany* (Cornell U. Press, 1947, pp. 189). Hans M. Wolff presents an analysis of "Brockes Religion" (*PMLA,* 62, 1124-1152). English-German literary relations are touched upon by Daniel V. B. Hegeman, "Boswell's Interviews with Gottsched and Gellert" (*JEGP,* 46, 260-263). An illuminating article is that by Robert T. Clark, Jr., "Herder, Cesarotti and Vico" (*SP,* 44, 645-671). Here we see how some of Herder's unique ideas were inspired: Cesarotti's translation of Ossian and his notes were used by Denis in his German translation. These acquainted Herder with Vico's fundamental ideas which Herder then expanded. The following is a reprint of a once popular book: *Thoughts on Jesting, Translated in the year 1764 from the Second German Edition of a Work by Georg Friederich Meier of the University of Halle.* Edited with Introd. and Notes by Joseph Jones (U. of Texas Press, 1947, pp. XII, 137). We have also noted the following articles: J. D. Workman, "Lichtenberg's Irrationalism" (*MfdU,* 39, 335-350); R. O. Röseler, "Kant's Theory of Freedom as an Ethical Postulate" (*MfdU,* 39, 322-334); Bernhard Ulmer, "The Leitmotiv and Musical Structure in Lessing's Dramas" (*GR,* 22, 13-31).

GOETHE AND SCHILLER

A group of American scholars has undertaken, under the editorship of Erich A. Allbrecht, Newcomb College, New Orleans, La., a comprehensive bibliography of Goethe research by American scholars since 1914, as a supplement to the well-known Goedeke volume, to be issued as a bicentennial publication in 1949. An appeal has been sent out for cooperation and items should be sent to the editor. Heinz Bluhm has compiled a "Goethe Bibliography for 1942 to 1944, German Non-periodical Publications" (*MfdU,* 39, 126-133). John Hennig has written two articles: "John Stewart Blackie's Translation of Goethe's *Jahrmarktsfest zu Plundersweilern* (*MLQ,* 8, 91-100), and "Goethe and an English Critic of Manzoni" (*MfdU,* 39, 9-16). Werner Vordtriede, in "The Trial of the Books, in Goethe and Cervantes" (*MLN,* 62, 339-340), compares a possible source for an incident in *Der Triumph der Empfindsamkeit.* Robert T. Clark, Jr. has treated "The Psychological Framework of Goethe's Werther" (*JEGP,* 46, 273-278). We note the following shorter articles: John N. Hritzu, "Reflections on Stage Direction and Stage Scenery in Goethe's *Iphigenie auf Tauris*" (*MfdU,* 39, 12-23); Ludwig W. Kahn, "Goethe's *Iphigenie,* Kleist's *Amphitrion* and Kierkegaard" (*MfdU,* 39, 234-236; Heinrich Meyer, "A Rediscovered Goethe Letter" (*MfdU,* 39, 188-189); Franzi Ascher, "Von Goethe und Rilke" (*GA,* 20, 227-230).

Martin Joos, "Just how Dusty was the Urfaust?" (*MfdU,* 39, 277-284), hints that Goethe, contrary to accepted statements, did work at the manuscript during the early years at Weimar. Two long and stimulating articles which attempt to open up new vistas and interpretations are: Ernst Jockers, "Faust und die Natur" (*PMLA,* 62, 436-471; 707-734) and Oskar Seidlin, "Helena: vom Mythos zur Person" (*PMLA,* 62, 183-212). Clarence Boersma, "On the Dating of the *Faust* Prologue" (*MLN,* 62, 539-544), would move it nearer to 1797. A study by Norbert Fuerst, "Zur Gestaltenfülle des *Faust*" (*MfdU,* 39, 297-303), gives observations based on his occupation with *Faust* dictionary. We note a sympathetic study: F. C. Neumann, "Gefühl ist alles, eine Goethe-Studie" (*MfdU,* 39, 220-233). To those interested in Goethe, the scientist, we refer to a new translation: Goethe's Botany: *The Metamorphosis of Plants* (1790) and Tobler's *Ode to Nature* (1782), with an introduction and translation by Agnes Arber. (Waltham, Mass., Chronica Botanica, vol. 10, no. 2, pp. 67-124, 1946). New facts on Goethe's marital status are presented by Joseph A. von Bradish, "Goethe und Christiane. Mit Hinzuziehung von sechs unveröffentlichten Urkunden zu Goethes Ehe" (*GQ,* 20, 109-121). The only Schiller items we have seen are: Max Lederer, "Noch einmal Schillers Reliquien" (*MLN,* 62, 7-12), and that of Werner Richter noted above.

NINETEENTH CENTURY

New York University has published a 20-page abridgement of a dissertation by Hedwig Wahl Reinhardt, *Johann Friedrich Reichardt, 1752-1814. His Importance to the Romantic Movement in German Literature.* H. W. Nordmeyer, "Kleists *Amphitryon,* zur Deutung der Komödie" (*MfdU,* 39, 89-125), is the fifth and last article of a new interpretation, which, for the reader's sake, we regret did not appear in monograph form. Longfellow's occupation with Novalis is recorded by Percy Matenko, "Fragments from Longfellow's Workship: Novalis" (*GR,* 22, 32-41). We recommend the little book by Powell Spring, *Novalis, Pioneer of the Spirit* (Winter Park, Fla., The Orange Press, 1947, pp. 174). Daniel F. Coogan, Jr. has published a hitherto unknown "Heinrich Heine Letter" (*MfdU,* 39, 403-404). Rudolf Kayser, "Georg Herweghs Shakespeareauffassung" (*GQ,* 20, 231-238) treats a less known aspect of his activity. Jack M. Stein has treated "The Influence of Schopenhauer on Wagner's Concept of the 'Gesamtkunstwerk'" (*GR,* 22, 92-105). We have noted two treatments of Gottfried Keller: Herbert A. F. Rodeck, *Das Adjektiv in den gesammelten Gedichten Gottfried Kellers* (Johns Hopkins U. Diss., Ann Arbor, 1946, pp. 112); Herbert W. Reichert, "A Comparison of the Philosophies of Schiller and Keller" (*MfdU,* 39, 170-177). Two studies of poetry are: Heinrich Henel, "Conrad Ferdinand Meyer's Poetry" (*MfdU,* 39, 81-88); Ernst Rose, "The Poetry of Theodor Fontane" (*GQ,* 20, 42-45).

TWENTIETH CENTURY

The modern writers of the past generation as well as those still active have attracted a large number of investigators and commentators. Of the former group may be mentioned: Frederick Lehner, "Hermann Bahr" (*MfdU,* 39, 54-62); Frederick Hiebel, "Die Demut in der Dichtung Christian Morgensterns" (*GR,* 22, 55-71); Wolfgang Paulsen, "Carl Sternheim: A Bibliography" (*PQ,* 26, 45-61); Walter Naumann, "Hofmannsthals Auffassung von seiner Sendung als Dichter" (*MfdU,* 39, 184-187); Norbert Fuerst, "Three German Novels of Education. III. R. M. Rilke's *Malte* Laurids *Brigge*" (*MfdU,* 38, 463-478); F. B. Wahr, "*Der Magier* as an Interpretation of Rilke's Later Thought" (*JEGP,* 46, 188-198); S. Soloveitchik and E. B. Gladding, "Rilke's Original Russian Poems" (*MLN,* 62, 514-522); H. J. Meesen, "Stefan Georges '*Algabal* und die französische Decadence'" (*MfdU,* 39, 304-321); Thomas A. Riley, "Anti-Statism in German Literature as Exemplified in the Work of John Henry Mackay" (*PMLA,* 62, 828-843).

Articles and books on modern authors who have recently died are represented by the following: Karl Wolfskehl, *1933: A Poem Sequence,* in English and German, English translation by Carol North Valhope and Ernst Morwitz (New York, Schocken, 1947); W. A. Willibrand, "The Timely Dramas of Ernst Toller" (*MfdU,* 39, 157-169); Hugh W. Puckett, "Franz Werfel's Mission" (*GR,* 22, 117-125); Karl S. Weimar, "*Damian,* Posthumous Novel of Hermann Stehr" (*MfdU,* 38, 479-491); Ernst L. Loewenberg, "Gustav Frenssen, 1863-1946" (*MfdU,* 39, 248-254); F. K. Richter, "Ernst Hardt, 1876-1947, ein, Beitrag zur deutschen Neuromantik" (*MfdU,* 39, 190-194); Frederick W. J. Heuser, "Biographic and Autobiographic Elements in Gerhart Hauptmann's *Einsame Menschen*" (*GR,* 22, 218-225); Frank X. Braun, "Hauptmann's *Festspiel* and Frenssen's *Bismarck,* A Study in Political Contrasts" (*GR,* 22, 106-116); Albert Scholz, "Gerhart Hauptmanns Florian Geyer in der Literaturgeschichte" (*GQ,* 20, 49-56); F. B. Wahr, "Gerhart Hauptmann's 'Mary' Poems" (*MfdU,* 39, 145-156); Max Lederer, "Gerhart Hauptmann, November 15, 1862-June 8, 1946" (*GQ,* 20, 46-48). John C. Blankenagel has edited "Albrecht Haushofer's *Moabiter Sonnette*" (*GQ,* 20, 189-194) which were written in prison and through a fortunate chance were smuggled out just before the execution of this high-minded patriot.

Alcuin A. Hemmen has written a dissertation on *The Concept of Religious Tolerance in the Novels of Enrica von Handel-Mazzetti* (Ann Arbor, 1947, pp. 134) which he has followed up with an article: "Enrica von Handel-Mazzetti, ad multos annos" (*MfdU*, 38, 449-462).

We record the following writings on contemporary writers: Fred Genschmer, "Oskar Maria Graf: Since World War I" (*GQ*, 20, 57-61); Werner Striedieck, "Wolfgang Kirchbach and the Jüngstdeutschen" (*GR*, 22, 42-54); Harold von Hofe, "German Literature in Exile—Leonhard Frank" (*GQ*, 20, 122-128); Henry N. Carlebach, "'Thamar' bei Thomas Mann und im jüdischen Schrifttum" (*MfdU*, 39, 237-247); Peter Heller, "Some Functions of the Leitmotiv in Thomas Mann's Joseph Tetrology" (*JR*, 22, 126-141); Oskar Seidlin, "Laurence Sterne's *Tristram Shandy* and Thomas Mann's *Joseph the Provider*" (*MLQ*, 8, 101-118); Alvin Kronacher, *Fritz von Unruh, a Monograph,* Introduction by Albert Einstein, Translated by Julia R. Stiller (New York, Rudolf Schick Publ. Co., 1946, pp. 64); John G. Frank, "Hans Carossas Träume und die Romantik" (*MfdU*, 39, 209-219); Fred Genschmer, "The Ordeal of Erich Kästner" (*MfdU*, 39, 389-402); Friedrich Bruns, "Ernst Wiechert" (*MfdU*, 39, 355-372); Pauline Steiner and Horst Frenz, "Anderson and Stalling's *What Price Glory?* and Carl Zuckmayer's *Rivalen*" (*GQ*, 20, 239-251).

On Hermann Hesse, the recent Nobel prize-winner, we have seen only one article: Anna Jacobson, "Hermann Hesse, Gedanken anlässlich der Auszeichnung durch den Nobelpreis" (*MfdU*, 39, 1-8).

GERMANS IN AMERICA

Since the *American German Review* covers this field in particular, not only for literary articles but also for American-German art, music, history, science and industry, Americans of German origin will find much of interest to them, as for example the following articles dealing with literature: Heinrich Herbatschek, "Die Anfänge des deutschen Theaters in Milwaukee" (*AGR*, 13, no. 3, 17-18); E. Heyse Dummer, "Hermann Sudermann, a contributor to American Culture" (*AGR*, 13, no. 3, 26-29). The latter describes early performances of Sudermann's dramas in Chicago. Adolf E. Schroeder has turned up "New Sources of Charles Sealsfield" (*JEGP*, 46, 70-74). Carroll E. Reed has contributed two linguistic investigations: "A Survey of Pennsylvania German Phonology" (*MLQ*, 8, 267-289) and "The Question of Aspect in Pennsylvania German" (*GR*, 22, 5-12).

SCANDINAVIAN LANGUAGES AND LITERATURES

The American-Scandinavian Foundation has sponsored the publication of *A Second Book of Danish Verse*, translated by Charles Wharton Stork (Princeton U. Press, 1947, pp. XVIII, 155). The Cornell University Press has announced as in preparation a *History of Icelandic Prose Writers: 1800-1940* by Stefan Einarsson, to be printed as volumes 32 and 33 of *Islandica*.

The *American Scandinavian Review* brings numerous articles on various subjects, including literature, which are of interest particularly to Americans of Scandinavian origin. *Scandinavian Studies and Notes* contains only matter on the Scandinavian languages and literature. We note a few articles of general interest: Carl E. W. L. Dahlström, "The Parisian Reception of Strindberg's Plays" (*SS*, 19, 195-207); Albert M. Sturtevant, "An Analysis of Certain Metaphors in Tegnérs Poetry" (*SS*, 19, 270-277); Hedin Bronner, "A Comment on the Wartime Function of Norwegian Poetry" (*SS*, 19, 123-135).

TEACHING OF GERMAN AND THE SCANDINAVIAN LANGUAGES IN AMERICA

For several years, F. S. Crofts & Co. has issued a compilation of the modern language enrollment in the colleges and universities of the United States. In the 816 institutions covered in the fall of 1946, the enrollment in German with 105,778 students represented 26.7 per cent of the total, compared with French 30.6 per cent, and Spanish 42.7 per cent. The increase in German was 108 per cent higher than the year before, owing largely to the general increase in enrollment. The Croft report for the fall of 1947 shows some striking contrasts. In the 960 institutions covered, the general enrollment rose 12.5 per cent, while that in French, German, and Spanish was only 6.5 per cent higher. The increase in German over 1946 is 11.26 per cent with a total of 127,111. The French enrollment is 6.85 per cent higher than 1946, the Spanish only 3.21 per cent.

Gösta Franzen and Hedin Bronner have made a detailed survey of "Scandinavian Courses Offered in Institutions of Learning in the United States" (*SS*, 19, 239-260). Instruction was found to be concentrated largely in a few north central states.

ROMANCE LANGUAGES AND LITERATURES

By Ernest Richard Moore
Professor, Syracuse University

GENERAL

Two special issues of Romance language journals honored the memory of Cervantes on the quadricentennial of his birth (*Hisp**) and the memory of a celebrated Spanish scholar, Rudolph Schevill (*HR*), recently deceased.

The year's principal achievement of American scholars was an encyclopedia of critical opinion on 1,167 topics, contributed by 239 scholars and edited by the late Horatio Smith—*The Columbia Dictionary of Modern European Literature*. There is little doubt that this compilation will become a standard reference work in most American libraries and studies.

A new journal, *Symposium*, has appeared and offered its pages to scholars writing in or about the principal modern languages and literatures.

BIBLIOGRAPHY

General.—A general bibliography is published annually in the Supplement number of *PMLA*. A yearly survey, "Recent Literature of the Renaissance" (*SP* 265-432) has sections devoted to French, Spanish, and Italian literatures of that period.

Italian.—The "Bibliography of Italian Studies in America" (*Ital* 255 *et passim*), an annotated list, was continued by V. Luciani. O. Bontempo added "Italian Literature in 1946" (*MLJ* 283-288) to his survey of 1946. A short list of titles by K. Bottke indicated the extent to date of "The Study of Italian Phonetics in America" (*Ital* 251-252).

French.—Under the direction of David Cabeen a team of American scholars has collaborated in the first volume of a selective *Critical Bibliography of French Literature* (Syracuse) covering the period from the Middle Ages to 1945. Six additional volumes will be published. The tenth annual survey of "Anglo-French and Franco-American Studies" (*RR* 97-116) was compiled and annotated by D. Bond, J. Carrière, and E. Seeber.

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* The following abbreviations are used in this section. Numbers refer to the pagination of the 1946 issues of the journal. *BA*, *Books Abroad; FR, French Review; HAHR, Hispanic American Historical Review; Hisp, Hispania; HR, Hispanic Review; Ital, Italica; L, Language; MLF, Modern Language Forum; MLJ, Modern Language Journal; MLN, Modern Language Notes; MLQ, Modern Language Quarterly; MP, Modern Philology; PMLA, Publications of the Modern Language Association; PQ, Philological Quarterly; RHM, Revista Hispánica Moderna; RI, Revista Iberoamericana; RR, Romanic Review; S, Speculum; SP, Studies in Philology; Sym, Symposium.* University presses are indicated by the name of the institution alone.

Henri Peyre wrote "Récents travaux sur la littérature française contemporaine" (*FR* 351-365), an excellent survey. "Une bibliographie supplémentaire des dictionnaires du français moderne" (*PLMA* 556-571), by R. Levy, listed 372 items of all classes of dictionaries with a useful subject index. As addenda to a recent book, M. Storer added two important "Bibliographical notes on Mme de Villedieu" (*MLN* 413-420).

Spanish.—O. Green gave a masterly summary of information and of trends in critical ideas for the period 1473-1600 in "A Critical Survey of Scholarship in the Field of Spanish Renaissance Literature 1914-1944" (*SP* 228-264), with fulsome bibliographical footnotes. J. Fucilla carried the previous study up to date in a limited field with his authoritative "The Present Status of Renaissance and *Siglo de Oro* Poetry" (*Hisp* 182-193). In homage of 30 years of teaching, former students published *Miguel Romera-Navarro: Bibliography of his Works* (Philadelphia).

Hispanic American.—The outstanding guide to literature in this field, the annual *Handbook of Latin American Studies* (*Harvard*), appeared in a volume that covered the year 1945. L. Barrett continued his "Theses Dealing with Hispano-American Language and Literature—1946" (*Hisp* 200-202). Two brief surveys were "Spanish American Books in 1946" (*MLJ* 289-293), to be contributed each year by J. Reid, and "Spanish American Literature in 1946" (*Hisp* 20-26) by D. Walsh. One hundred Brazilian authors and their major works were selected by M. Cilley in "Brazilian Literature" (*Hisp* 107-113). A brief appraisal of "A literatura Argentina no Brasil" (*RI* 135-141) was made by D. Wogan.

LINGUISTICS

General.—The duel between neogrammarians and eclectics was continued and summarized in R. Hall's "Science Comes to Languages" (*Sym* 1: 40-49) and M. Pei's ". . . Or Does It?" (*Sym* 1: 51-59), while E. Sturtevant presented the tenets of the new school in *An Introduction to Linguistic Science* (Yale). Examining the "Final *-s* in the Romania" (*RR* 159-166), R. Politzer concluded that "existing evidence excludes the Archaic loss of final *-s* as a satisfactory basis for the Romance distribution, which can be best understood by a consideration of the cultural and social forces which led to the creation of the individual Romance tongues in the eighth century."

French.—The "Linguistic Value of Michel Edition of Joinville's *Histoire de Saint Louis*" (*RR* 193-202) is a unique and authentic synthesis of French during the first half of the fourteenth century. L. Spitzer studied the "Joinville etymologie (preu homepreudome)" (*MLN* 505-514); G. Adams, "The Development of Classical Latin Consonant Groups of Three in Old French" (*SP* 1-3); C. Livingston, "Provençal *bus* and O. F. *bus*" (*Word* 210-215); A. Hatcher, "Le type *timbre-poste*" (*Word* 216-218); R. Levy considered "L'origine du vieux français *gaigaie*" (*Sym* 1: 7-11), as onomatopoetic, and interpreted "The Term *language* in *Le pelerinage de Charlemagne*" (*MLN* 125-126). English-French language influences were disclosed in "Anglicisms in French" (*PMLA* 1153-1177), by S. de Ullmann; "English *searce, search* 'sieve,' 'strainer'" (*MLN* 550-554), by C. Livingston; "Ragamuffin, ragman, rigmarole, and rogue" (*MLN* 85-92). R. Levy's "The Background and Significance of Judeo-French" (*MP* 1-7) was an historical and linguistic analysis.

Spanish.—The long-awaited *Tentative Dictionary of Medieval Spanish* (Chapel Hill), compiled by R. S. Boggs *et al.*, was issued in two mimeographed volumes for correction by other scholars. M. Goldberg compiled an *English-Spanish Chemical and Medical Dictionary* (McGraw). A. Alonso replied to R. Predmore with a "Nota sobre una ley fonológica del español" (*HR* 306-307), and stated that "Árabe *st*> esp. *ç*. —esp. *st*> árabe *ch*" (*PMLA* 325-338). Y. Malkiel found a "Latin-Hebrew Blend" (*HR* 272-301) in Hispanic *desmazalado*. J. and H. Corominas traced "Spanish *santurrón*" (*MLN* 122-124) to Old French; C. Kany investigated "Some Aspects of Bolivian Popular Speech" (*HR* 193-205). No influence of Brazilian speech on that of the Azores was seen by F. Rogers in his study (*MLN* 361-369).

Italian.—A. Mezzacappa's "A casa le buone femmine" (*Ital* 248-250) suggested that such phrases develop syntactically from an absorbed preposition "a." M. Treves published some "Remarks on Italian Phonetics" (*Ital* 62-68), and L. Spitzer gave the etymologies of "sbaglio, abbaglio, (ab)bagliare, bagliore, barbaglio" (*Ital* 69-72).

FRENCH LITERATURE

General.—An amusing and original article was H. Grubb's "Nonsense in France and in French Literature" (*MLQ* 21-30), showing the independence and difference from English models of French nonsense literature.

Early.—E. Place suggested six new readings in "Problems in the Oxford *Roland*" (*PLMA* 873-886); and A. Schutz added an interpretation to "Roland v337" (*MLN* 456-461). J. Williams' "Godfrey of Rheims" (*S* 29-45) was a new study on the eleventh century humanist. "The Old French Verse Bible of Macé de la Charité" (*S* 226-239) is a translation of the *Aurora,* the medieval Latin verse Bible. U. Holmes supported the view that "The *Pelerinage de Charlemagne*" (*Sym* 1: 75-81) was not necessarily composed in the Paris area or inspired by the Lendit; G. Adler, studying the same poem, discussed treatment in it of contemporary events (*S* 550-561); A. Hatcher (*Sp* 4-25) suggested some emendations and new interpretations to the Leipzig 1923 text. In "A New Interpretation of Chrétien's *Conte du graal*" (*SP* 453-476), U. Holmes argued "that in the mind of Chrétien, and in that of Philippe d'Alsace, the Grail story was the conversion of Judaism to Christianity"; H. Adolf, referring to the same *conte* (*MLQ* 3-20), reconstructed the immediate sources of the poet, and in another article threw "New Light on Oriental Sources for Wolfram's *Parzival* and Other Grail Romances" (*PMLA* 303-326); A. Adler explored the concept of "Sovereignty in Chrétien's *Yvain*" (*PMLA* 281-305) and traced "The theme of 'the handsome coward' and of 'the handsome unknown' in Meraugis de Portlesguez" (*MP* 218-224). Of interest also are J. Andressohn's *The Ancestry and Life of Godfrey of Bouillon* (Indiana), R. Walpole's *Philip Mouskes and the Pseudo-Turpin Chronicle* (California), and H. Williams' *Floriant et Florete* (Michigan). L. Spitzer added a new reading of "Le vers 2 d'*Aucassin et Nicolette*" (*MP* 8-14). An excellent view of the "Present Status of Studies in Saints' Lives in Old French Verse" (*Sym* 2: 82-86) was presented by W. Bowen. Some Provençal studies: C. Bühler, "The Phillipps MS. of Provençal Poetry now MS. 819 of the Pierpont Morgan Library" (*S* 68-74), a new index to its 73 poets and 494 poems; A. Schutz, "Some Character Attributes in the Provençal *vidas* and *razos* (*Sym* 1: 119-139), a linguistic analysis of then current meanings of eight such words; F. Chambers, wrote "On the Attribution of a Provençal Poem" (*MLN* 320-321) to Gausbert de Poicibot.

Sixteenth Century.—M. Françon contributed a "Note on the Use of the Guidonian Nomenclature by Marchant and Rabelais" (*S* 249-250), and on Rabelais' *Pantagruel* and the Draught of "Eté 1532" (*MLN* 474-475). B. Weinberg saw in "The Sources of Grêvins Ideas on Comedy and Tragedy" (*MP* 46-53) "the merest beginnings of the classical theory" of drama. J. Lapp, writing on Ronsard's friend, "Pontus de Tyard and the Science of his Age" (*RR* 16-22), credited him with rejection of stifling authority, and also disclosed "The Identity of Pontus de Tyard's *curieux*" (*MLN* 468-471)—the poet, Guillaume des Autels.

Seventeenth Century.—G. Brée

believes that "Le thème de la violence" (*RR* 216-225) in Racine's tragedies arises from a conflict of power and will, leaving death or insanity as the only solutions; she also analyzed "the technique of Racine as exposed in prefaces to his plays (*S* 2: 99-105). "Molière's Debt to Montaigne" (*MLQ* 290-301) was, C. Wadsworth believes, fundamental, philosophic, and contributory to the lasting qualities of his greatest plays. P. A. Wadsworth showed the evolution of the final chapter of *Caractères* in "La Bruyère against the Libertine" (*RR* 226-233) and concluded that his was not a pious pose or dutiful gesture but an affirmation of faith. B. Morrissette explored *The Life and Works of Marie-Catherine Desjardins (Mme de Villedieu)* (Washington U.), practitioner of the historical novel.

Eighteenth Century.—C. Brenner discussed the *Dramatization of French Stories in the Eighteenth Century* (California). "Montesquieu's Historical Conception of the Fundamental Law" (*RR* 234-242) recrystallized two contrasting theories of monarchy in pre-revolutionary France, according to E. Pierce. A masterly series of *Studies on Voltaire with Some Unpublished Papers of Mme du Chatelet* (Princeton) was written by I. O. Wade. G. Havens made a minor correction to Voltaire's poem on the Lisbon disaster (*MLN* 465-468). M. Ellis, in "Jean-Jacques Rousseau, Biographical Problems" (*RR* 117-132), cast light on four episodes in his life; M. Françon discussed two additions by Rousseau to his *Discours* (*MLN* 342-343). D. Gordon and N. Torrey presented a lengthy study of *The Censoring of Diderot's 'Encyclopédie' and the Re-established Press* (Columbia). "Two Unpublished Satirical songs of Jacques Cazotte" (*MLN* 322-325) were put into print by E. Shaw. A Jacobin poet who lived in Virginia was "Quesnay de Beaurepaire" (*FR* 463-470), written by J. Roberts. Finally, L. Forky discussed *The Role of Money in French Comedy during the Reign of Louis XIV* (Johns Hopkins).

Nineteenth Century.—"Recent French Criticism on romanticism" (*Sym* 2: 43-53), J. Salvan discovered, encourages expansion on the social and not on the individual plane. M. Bishop proved that "Chateaubriand did not meet Washington" (*MLN* 412-413). C. Lynes showed that the same writer considered the "French Renaissance" (*PMLA* 422-435) barbarous and morally corrupt; and E. Malakis, that Renan borrowed from him "Le miracle juif" (*MLN* 475-477). Victor Hugo attracted analysts: W. Pondell, *Victor Hugo's Acted Dramas and the Contemporary Press* (Johns Hopkins); S. Braun, *The 'courtisane' in the French Theatre from Hugo to Becque (1831-1885)* (Johns Hopkins). C. Lynes wished to prove that *"Reappearing Characters in the 'Comédie humaine'"* (*RR* 329-335) is an esthetic device of negative value; R. Vigneron gave a scrupulous account of the first three editions, with textual emandations of the same series of novels (*MP* 165-188). B. Bart saw "The moral of Flaubert's *Saint Julien*" (*RR* 23-33) deriving from his doctrine of impassibility as a fusion of esthetics and morality; L. Miller gave evidence of the novelist's regard for Sainte-Beuve (*MLF* 45-59); and M. Bonwit examined "The Significance of the Dog in Flaubert's *Education sentimentale*" (*PMLA* 517-524). The naturalists: L. White, "Representative French criticism of *Les Rougon-Macquart,* 1873-95" (Illinois, thesis abstract); S. Braun, "Zola's Esthetic Approach and the Courtesan" (*MLN* 449-456), a chaste and moral motivation; D. Jones, "Gavarni and the Goncourts' *Henriette Marechal*" (*MLN* 405-409), the lithographer's influence.

L. Wylie published an interesting study of *Saint-Marc Girardin—bourgeois* (Syracuse) and disclosed that his lectures on "Poetry at the Sorbonne" (*Sym* 1: 112-118) were political and popular. A. Schaffer gathered principally biographical information "On Some Contributors to *Le Parnasse contemporain*" (*MLQ* 235-242), an anthology of new verse issued in

1866, 1869, and 1876 by Alphonse Lemerre.

Symbolist poets attracted several scholars: C. MacIntyre translated *One Hundred Poems from 'Les fleurs du mal'* (California); W. Fowlie attempted to assort and expand the meanings of "The theme of Night in Four Sonnets of Mallarmé" (*MP* 248-258); J. Bernstein studied *Baudelaire, Rimbaud Verlaine* (Citadel); A. Matthews produced a complete summary of the review, *La Wallonie, 1886-1892* (King's Crown), in which Belgian symbolists found an ally and voice.

Twentieth Century.—B. Weinberg on the basis of a purely structural analysis gave "An interpretation of Valéry's *Le cimetière marin*" (*RR* 113-158)—that the spectator must exploit life to its fullest to obtain now absent joys; K. Douglas studied "Paul Valéry's Abandonment and Return to Literature" (*FR* 203-209); L. Allen listed several possibilities in "The Literary Background of Claudel's 'Parabole d'animus et anima'" (*MLN* 316-319). R. Virtanen commented on "Barrés and Pascal" (*PMLA* 802-823), especially on the former's inadequate interpretations; André Bourgeois found "René Boyesve" (*FR* 372-387) a friend of spontaneous anarchism it results in eventual order. A. Balakian inquired into the *Literary Origins of Surrealism* (King's Crown); A. Gaudin analyzed the surrealist "Poésie de Jacques Prévert" (*FR* 383-392).

D. Saurat examined *Modern French Literature, 1870-1940* (Putnam). G. Brée gave a new insight into Proust's composing habits (*RR* 43-52). *The Journals of André Gide* (Knopf) were translated and annotated in a major piece of scholarship by J. O'Brien. "Maurice Bedel" (*FR* 366-371) was, in the view of L. Forkey, a prophet of the disaster to befall the Third Republic. E. Fay surveyed and summarized critics appraisals of "The Philosophy of Saint Exupéry" (*MLJ* 90-97). D. Alden presented an interesting view of "French Literature since the Liberation" (*FR* 267-275).

ITALIAN LITERATURE

Dante.—Scholarly investigation was limited almost entirely to the Dante-Petrarch age. Three studies looked into Dante's sources: "Further Gleanings from 'Dante's Latin Dictionary'" (*RR* 3-12) by H. Austin continued the 1946 article in *Italia;* "Notes on the Greek in 'Dante's Latin Dictionary'" (*SP* 477-482), also by Austin, showed that sources other than Uguiccione may have been used; "Did Dante Know Terrance?" (*Ital* 212-218) was answered affirmatively by J. Russo. Asking whether Dante's general progress in Hell was "Clockwise or counter-clockwise?" (*Ital* 201-205) H. Austin built up reasons for the former. Several textual clarifications appeared in *Italica* (14-19, 119-124), *PMLA* (555-556), and *RR* (13-15).

Petrarch.—E. Wilkins published two authoritative articles: full descriptions and clarifications of 28 "Manuscripts of the *Canzoniere* and the Triumphs of Petrarch in American libraries" (*MP* 23-35) and edited in part "A Morgan miscellany" (*Ital* 187-195), MS. 326. D. Phillips found a key to "Petrarch's Ethical Principles" (*Ital* 219-232) in his doctrine of self-knowledge.

Others.—V. Cioffari saw "The Functions of Fortune in Dante, Boccaccio, and Machiavelli" (*Ital* 1-13), principally in the latter, as "uncontrollable indeterminism." O. Evans exposed "Two Misrepresentations of Machiavelli's *Clizia*" (*PQ* 90-91) by nineteenth century critics. C. Gilbert offered addenda and cross-index to a previous inventory of "Michael Angelo's Poetry in English Verse" (*Ital* 46-53). M. De Fillipis commented on the favor 'Straparola's Riddles" (*Ital* 134-146) enjoyed among European writers. A search for "The Philosophy of Man in the Italian Renaissance" (*Ital* 93-112) was undertaken by P. Kristeller.

SPANISH LITERATURE

General.—The principal general study was D. Alonso's *Ensayos sobre poesía española* (Macmillan). An important continuing article "Indice de analogías entre la lírica española y la moderna" (*Sym* 1: 12-33, 2: 4-35), classifying these parallelisms by subject and verse form, was contributed by E. Torner. J. Gillet considered the historical origins and development of the frequent rhyme "Lucrecia-necia" (*HR* 120-136).

Early.—"The debt of the *Poema de Alfonso onceno* to the *Libro de Alexandre*" (*HR* 436-452) was considered as considerable and direct by G. Davis. E. Roditi published a full bibliographical description of the unique fifteenth century "Chicago Manuscript of the Castilian *Breviario de amor*" (*MP* 15-22), derived from the Provençal *Breviari d'amor* by Matfri Ermengaut. The chief interest of "The Second Eclogue of Garcilaso de La Vega" (*HR* 251-271) is in its psychological intensity if we agree with A. Lumsdem. F. Sánchez y Escribano examined "La colaboración en la *Philosofía vulgar* de Juan de Mal Lara" (*HR* 308-312) by "un amigo" (Cristobal de Tamariz?) and his own father. In "One Man's Library, Manila, 1583" (*HR* 84-100), I. Leonard annotated 55 titles as additional evidence of the diffusion of Spanish literary culture. O. Green classified some misconceptions about "The Celestina and the Inquisition" (*HR* 211-216) and also attempted to reconcile "Fernando de Rojas, *converso and hidalgo*" (*HR*). R. Frank explained "Four Paradoxes in *The Celestina*" characters by reference to the mores and literary traditions of Rojas' time (*RR* 53-68).

Golden Age.—In honor of Cervantes on the 400th anniversary of his death, A. Bell published an excellent critique, *Cervantes* (Oklahoma); H. Hatzfeld scanned "Thirty Years of Cervantes Criticism" (*Hisp* 321-328); and M. Singleton placed "The Date of *La española inglesa*" (*Hisp* 329-335), a *novela ejemplar,* in 1587. S. Nemtzow studied and classified "El estudiante en la comedia del Siglo de Oro" (*MLF* 60-81), a literary type. C. Bruerton placed "The Date of Schaeffer's *Tomo antiguo*" (*HR* 346-364) of plays as not before 1626. S. Morley and C. Bruerton issued important "Addenda to the Chronology of Lope de Vega's comedias" (*HR* 49-71) supplementing their book of 1940. Other Lope studies: J. Lincoln, *Saint Ursula, the Infanta Isabel, and Lope de Vega* (Michigan); C. Wagner, "The Date of *Peribañez*" (*HR* 72-83), 1604-1605. O. Green wrote a note on Count "Villamediana as 'Correo mayor' in the Kingdom of Naples" (*HR* 302-305). "Three notes on Alarcón's *Las paredes oyen*" (*HR* 378-383) by B. Ashcom gave as many new readings. "La antología de [José] Alfay y Baltasar Gracián" (*HR* 325-345) by M. Romera-Navarro refers to the authorship of *Poesías varias* (1654). Calderón had his admirers: E. Gates discussed the "Proverbs in the Plays of Calderón" (*RR* 203-215), where and how used; and F. Hayes wrote on "The Use of Proverbs as Titles and Motives" (*HR* 453-463) in 24 of his plays; E. Hesse offered proof that "Court References in Calderón's *zarzuelas*" (*HR* 365-377) occurred mainly in the *loas* and gave "verbal cameos" of court personages.

Later periods were interestingly explained by S. Gilman in "An Introduction to the Ideology of the Baroque in Spain" (*Sym* 1: 82-107) and F. Pierce in "The *canto épico* of the Seventeenth and Eighteenth Centuries" (*HR* 1-48), an "intrinsic part of the Renaissance literary epic."

Modern.—E. Templin in "Pío Baroja and science" (*HR* 165-192) disclosed Baroja's vast but dilettante knowledge of science. Joaquín Casalduero edited *Jorge Guillén: Cántico* (Macmillan).

HISPANIC AMERICAN LITERATURE

Colonial.—J. Spell, with his usual thoroughness, contributed new information from archival sources on "The Theatre in New Spain in the Early 18th Century" (*HR* 137-164) and on Eusebio Vela, a dramatist. A. Torres-Ríoseco's "Sor Juana Inés de la Cruz" (*RI* 13-38) was an analysis of her philosophy as seen in her poems.

Other.—On Argentina: D. Brown

interpreted "Some Significant Changes in the Second Edition [1942] of Manuel Gálvez' *Miércoles santo*" (*MLN* 471-473) as making it "at once more naturalistic and more christian"; M. Hole wrote about *Bartolomé Mitre: a poet in action* (Hispanic Institute). Columbia: A. Vargas Barón continued his "Vida y pensamiento de José Joaquín Vargas Valdés" (*RI* 93-123). Cuba: J. Leslie published a note on Julián de "Casal's Salomé" (*MLN* 402-404), a sonnet. Puerto Rico: D. Samuels' "El Crucero lírico de Providencia Riancho" (*RI* 125-130) reviewed a book published in 1939. Brazil: J. Lincoln's posthumously published *Charts of Brazilian Literature* (Edwards Bros) should be very helpful to scholars and teachers.

COMPARATIVE LITERATURE

General.—M. Sherwood investigated "Magic and Mechanics in Medieval Fiction" (*SP* 567-592), and B. Morgan offered some observations on "The Novelette as a Literary Form" (*Sym* 1: 34-39). The conflicting esthetic theories of 1800-1815, particularly in France, were inquired into by H. Garrett in "The Imitation of the Ideal" (*PMLA* 735-744). J. Wenger's "Character-types of Scott, Balzac, Dickens, Zola" (*PMLA* 213-232) demonstrates the creation by each novelist in his "average" novels of a personal mythology revolving about sex, youth, animals, and the devil. Parodies and translations of Hans Leip's lyrics "Lily Marlene" (*MLJ* 30-34) in Italian, French, English, and German, were published by J. Hieble.

Italian influences on English literature: R. Pratt made a thorough study of "Chaucer's Use of the *Teseida*" (*PMLA* 958-621), which was extensive; A. Gilbert showed that "The Italian names in [Jonson's] *Every Man Out of His Humour*" (*SP* 195-208) were used to individualize the characters; the same scholar in "Nevizanus, Ariosto, Florio, Harington, and Drummond" (*MLN* 129-130) traced the fate of an Italian epigram; V. Luciani's "Bacon and Machiavelli" (*Ital* 26-40) outlined the Englishman's impressive debt; R. Babcock unearthed the factual basis for "English Interest in Italy and Italian Romantic Criticism in the 18th Century" (*PQ* 152-158); A. Pace in "Franklin and Machiavelli" (*Sym* 2:36-42) concluded that the former writer had the latter's masterpiece in mind while writing his *Rules*. Other borrowings from the Italian: R. Hall suggested "A possible Italian model for Don Quijote" (*Ital* 233-234) in the personal misfortunes of Bernardo Tasso; R. Clark proved that Vico's ideas reached Herder through Cesarotti's Italian translation of Ossian (*SP* 645-671).

French influences on English literature: J. Schweitzer, "Another note on Dryden's use of Georges de Scudéry's *Almahide*" (*MLN* 262-263); F. Cordasco indicated Edouard Dujardin's formative influence on George Moore's biblical and religious novels (*MLN* 244-251); W. Vordtriede's "The Mirror as Symbol and Theme in the Works of Stephane Mallarmé and Stefan George" (*MLF* 13-24) showed the latter's debt to Mallarmé and French symbolism; A. Cooke undertook a study in parallelisms: "Henry Fielding and the Writers of Heroic Romance" (*PMLA* 984), particularly Mlle. de Scudéry; a contrasting treatment was offered in "George Moore and Paul Alexis" (*RR* 34-42) of the death of a Bohemian lady of Paris, as studied by R. Niess; H. Brady examined in detail *Chaucer and the French Poet Graunson* (Louisiana State). English-French influences: S. Atkins, "A Possible Dicken's Influence in Zola" (*MLQ* 302-308); H. Grubbs, "Mallarmé and Bryant" (*MLN* 410-412), a borrowed figure of speech; L. Douglas revealed that Pope did not intend "A severe animadversion on Bossu" (*PMLA* 690-706), the learned and popular French critic. French-Spanish relations: D. Brown, "Chateaubriand and the story of Feliciana in Jorge Isaacs' *María*" (*MLN* 326-329), this slave story being a brief version of *Atala;* N. Adams' "A note on Mme. Cottin and the Duke of Rivas" (*HR* 218-221) compared her *Mathilde* as versified in his *Malek-Adhel.* French-German relations: D. Van Abbé in "Some notes on cultural relations between France and Germany in the nineteenth century" (*MLQ* 217-227) saw little influence after Voltaire until the naturalists; W. Oechler used Stefan Zweig's letters to Julius Bab to mirror "The reception of Emile Verhaeren in Germany" (*MLN* 226-233); S. Ezban reviewed the influence of Goethe and Nietzsche on the thoughts of Pierre Lasserre especially in his *Romantisme français* (*RR* 243-252). The French built upon the ancients: G. May, "Contribution à l'étude des sources grecques de Phèdre" (*MLQ* 228-234), i.e., Racine's play and Heliodorus' novel; P. Morphopoulos, "L'image de la Grèce chez les voyageurs français" (Johns Hopkins thesis abstract), covering the 16-18 centuries; A. Schaffer compared "A Theocritean Idyll in French Poetry" (*MLN* 300-309) as used by Joséphin Soulary, Armand d'Artois, André Chénier; B. Hathaway's "The Lucretian *Return upon Ourselves* in Eighteenth-Century Theories of Tragedy" (*PMLA* 672-689) showed its evolution in France; G. May answered an emphatic "yes" to "Racine avait-il lu Ennius?" (*MLN* 461-465).

Spanish contributions to literary currency: M. Heiser traced the fame of "Cervantes in the United States" (*HR* 409-435), with its highpoint between 1790-1815; W. Vordtriede in "The Trial of Books in Goethe and Cervantes" (*MLN* 339-340) showed the borrowing in *Der Triumph der Empfindsamkeit;* J. Fucilla found "A travestied *Don Quijote*" (*Hisp* 336-340) in Nicola Limosino's poem "Don Chisciotte della Mancia"; F. Snow published a collaborative translation of Lope de Rueda's *Las aceitunas* (*MLJ* 98-102); J. Rundle and H. Lancaster took opposite sides on a Calderón borrowing (*MLN* 382-384, 385-389); J. Fellheimer asserted that Hellowes' and Fenton's translations of Guevara's *Epístolas familiares* (*SP* 140-156) gave general impetus rather than definite models to English letter-writers; M. Patchell wrote on *The Palmerin Romances in Elizabethan Prose Fiction* (Columbia); V. Erlick in "Beniowski and Don Juan" (*Sym* 2:87-98) discussed a literary parallel. Two Latin American items: J. Fucilla, "Bernardo de Balbuena's *Siglo de oro* and its sources" (*HR* 101-119), principally Sanazzaro and Virgil; G. Highet, "Classical Echoes in *La araucana*" (*MLN* 329-330), i.e., of Lucan.

LATIN LITERATURE [*]

By George Depue Hadzsits

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PLACE OF THE CLASSICS IN EDUCATION

"The Humanistic Tradition in the Century Ahead" is an impressive statement of a memorable conference held at Princeton University (Princeton Univ. Press, Bicentennial conference, Series 1, Conference 6), cf., also, *The American Scholar* (vol. 16, no. 4) for the Forum, on *The Human-*

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[*] Periodicals are abbreviated as follows: *AHR, American Historical Rev.; AJA, American Journal of Archaeology; AJP, American Journal of Philology; CB, Classical Bulletin; CJ, Classical Journal; CO, Classical Outlook; CP, Classical Philology; CQ, Classical Quarterly; CR, Classical Rev.; CW, Classical Weekly; HSCP, Harvard Studies in Classical Philology; HThR, Harvard Theological Rev.; Is., Isis; JHI, Journal of History of Ideas; JRS, Journal of Roman Studies; Lang., Language; PhQ, Philological Quarterly; Spec., Speculum; PAPA, Proceedings of the American Philological Association; TAPA, Transactions of the same; Verg., Vergilius; YCS, Yale Classical Studies* (all references are to 1947).

Bibliographical information will be found in lists of "Recent Publications," appearing in *CW*, and in "Recent Books," listed in *CJ*, as well as under "Classical Articles in Non-Classical Periodicals" which *CJ* also publishes.

ities, Today and Tomorrow, with Edmunds O'Gorman's severe criticisms of Princeton's "The Humanistic Tradition, etc."

Norman Foerster's *The Future of the Humanistics in State Universities* is a book which should be "required reading" for everyone at all interested in education; it is a biting and satiric condemnation of the neglect of the Humanities (see review, *CJ* 43, 27-30).

In the Spring number (1947) of *The American Scholar* (16, 137-139), Max Lerner writes on "A Tragic Humanism," which is a challenge to American Education and, not least, to Classical scholars.

"Toward Improvement of the High School Latin Curriculum," (*CJ* 43, 67-90) is by the Committee on Educational Policies of the Classical Association of the Middle West and South.

"W. Kirkconnell and A. S. P. Woodhouse, *The Humanities in Canada* (Humanities Research Council of Canada, Ottawa) plainly shows that the Harvard General Education has not been accepted in Canada (see rev., *CJ* 43, 188-189).

"General Language Courses in Colleges and Secondary Schools" (*CJ* 42, 419-424) by J. W. D. Skiles, is concerned with objectives, with valuable bibliography.

"What Language Do You Speak?" is an excellent review of the history of the English language, with due attention paid to the influence of Latin upon its development (F. S. Dunham, in *CJ* 42, 455-464, with bibliography).

A NEW PROGRAM

In "A Point of Order," Prof. W. L. Carr again urges the necessity of following the cogent advice of Professor Hale who, more than 50 years ago, advocated the proper method of reading, in his "The Art of Reading Latin" (*CW* 41, 9-14). No one, today, argues the point, that we should speak Latin, more convincingly than Goodwin B. Beach (cf. his *Nihil est quod Latine dici non possit* (*CW* 40, 42-45).

A Eulogy—"Arcadius Avellanus—Erasmus Redivivus," who spoke Latin as a living language, and from whose example classicists must profit today if they would save Latin for American education (G. B. Beach, in *CJ* 42, 505-510).

Prof. F. B. Krauss defends Latin conversation in the classroom, ably and wisely: "Loquarne Linguis Hominum aut Disertorum" (*CW* 40, 154-160, 162-164) "The language is dying, imprisoned in the minds of grammarians; it can come forth and live only on the lips of students and of scholars."

LITERATURE AND LINGUISTICS

"Censorship in Republican Drama" is discussed by Laura Robinson, who reminds her readers that Roman public opinion favored free speech but that personal attacks upon magistrates on the state-supported stage were dangerous. This, therefore, resulted in a limited right of free speech. Naevius' imprisonment was a warning to Plautus. The Mime was allowed greater liberty (see *CJ* 42, 147-150).

J. P. Elder's "Catullus' *Attis*" properly defends Catullus as an imaginative poet and not, merely, a translator of Callimachus (*AJP* 68, 394-403).

A new edition of Lucretius is announced by the Oxford University Press, with Text, Critical Apparatus, and Commentary, prepared by the eminent English scholar, Cyril Bailey. Its arrival and use in this country is looked forward to, with great interest.

"Progress and Primitivism in Lucretius," by Margaret Taylor (*AJP* 68, 180-194) is valuable, not only for a review of other scholars' conclusions, but also for its stress on the gains for mankind, as Epicureans saw it, due to Epicurean philosophy.

"The Tale of Troy: An Early Romantic Approach" by Prof. E. H. Haight, pursues her favorite theme of Romance in Classical literature, as she explores the romantic element in the little-known *Ephemeris Belli Trojani* of Dictys of Crete, which Miss Haight regards as a Latin version of a lost Greek novel (*CJ* 42, 261-269).

"Horace's First Roman Ode," by Fr. Solmsen (*AJP* 68, 337-352) argues for the theory that we have, here, Horace's personal and most intimate pre-occupation with the eternal verities.

Prof. A. P. McKinlay argues in favor of Horace's moderation, in "The Wine Element in Horace" (*CJ* 42, 161-168; 229-235, with important bibliography). "Menander at the Sabine Farm" raises the question what use Horace made of the Greek Menander (E. H. Haight, in the *CP* 42, 147-155).

In the *Philological Quarterly* (vol. 26, no. 3, 268-284), Professor Regenos writes, interestingly, about "The Influence of Horace on Robert Herrick."

Professor H. Fränkel's important *Ovid, A Poet Between Two Worlds* receives a notably able review (*CP* 42, 57-61) by Brooks Otis who analyzes Ovid's appeal through the ages and, with discrimination, disagrees with some of Fränkel's views.

Miss Bertha Marti follows up her remarkable essay on "Seneca's Tragedies—A New Interpretation" (see THE AMERICAN YEAR BOOK, 1946, 922) with another study, "The Prototypes of Seneca's Tragedies" (*CP* 42, 1-16), in which she develops the theme that all of these tragedies were problem plays, intended to be read and to instruct.

Prof. W. C. Korfmacher's "Pliny and the Gentleman of Cicero's *De Officiis*" (*CW* 40, 50-53), is an excellent evaluation of the "gentleman" idea in two important Roman authors.

The "Rand" *Servius* deserves special notice, as a great monument of classical scholarship (see rev. *CO* 25, 9 by Professor Ullman).

A very important work is that of Marcel Renard: *Initiation à l'Étruscologie* (rev. *CW* 41, 75-76), which all classical students should know.

HISTORY, LAW, POLITICS, COMMERCE AND FINANCE, SOCIOLOGY

"The Survival of the Roman Empire" is a wise pronouncement upon the ancient ideal of organizing "humanity in the boundless majesty of peace." Prof. Eva M. Sanford is an eloquent exponent of the concept of "One World" and would have us learn the lessons of history for our present needs (*CW* 41, 52-56). She also discusses "The Destruction of Ancient Rome" wittily and intelligently (*CW* 40, 122-127, 130-133).

"An Ancient *Cause Célèbre*" calls attention to Cicero's *Pro Cluentio* and the frightening and scandalous, the notorious and sensational careers of Oppianicus and Sassia, and to poison and murder in Rome in Cicero's day—a chapter in *Sociology and the Law* (*CJ* 42, 415-418, E. C. Woodley).

Studies in the History of Roman Seapower in Republican Times, is by J. H. Thiel (Amsterdam) (rev., *CP* 42, 257-260, C. G. Starr).

A Project for the Translation of Roman Law is announced (*CJ* 42, 141-146) by Professor Clyde Pharr. This ambitious program includes publication of an authoritative text of the *Corpus Iuris Romani*, accompanied by an English translation, and provides for a distinguished editorial board.

Prof. Clark Hopkins writes informatively on "The Siege of Dura," the site of Professor Rostovtzeff's dramatic excavations. This article gives a vivid account of Dura's commercial, military, and religious significance (*CJ* 42, 251-259) from the third century B.C., into the second and third centuries A.D.

"The Personality of the Mints, Under the Julio-Claudian Emperors," by C. H. V. Sutherland (*AJP* 68, 47-63), clearly demonstrates the value of the study of coins for the study of Roman history and pays a high compliment to the superb British Museum Catalogues of Mattingly.

In "Nero Fiddled While Rome Burned," Miss Mary F. Gyles argues for Nero's use of a *cithara* while he sang of "the Fall of Troy" (*CJ* 42, 211-217).

"Toscaninis of Two Thousand Years Ago" (*CO* 25, 1-2), by John J. Jolin, is as interesting as it is instructive.

The witty article of E. S. McCartney, "The Quoting of Proverbs and Maxims as a Social Grace and Fault" (*CW* 40, 74-76) should be widely read and his "A Bibliography of Collections of Greek and Roman Folklore" (*CW* 40, 99-101) is invaluable.

"The Kiss, in Roman Law" (*CJ* 42, 393-397), by Mary Brown Pharr, deals with the less well known but very interesting topic of ceremonial kisses, betrothal, contractual, and gift-giving, etc.

ARCHAEOLOGY INSCRIPTIONS, PAPYRI

A report appears (*CJ* 42, 155 seq.) on a pagan cemetery of the second-third centuries, A.D., astonishingly well-preserved, showing a narrow street, lined on both sides with typical Roman tomb structures which contain sarcophagi and sepulchral urns. The inscriptions reveal the familiar phrases of family devotion, frequently found on tombstones. The locale of this intensely interesting find is indicated in the title of the descriptive article: "Roman Tombs Beneath the Crypt of St. Peter's."

T. C. Lethbridge, of Cambridge University, reports on a "Treasure Trove in Britain" (see *CJ* 42, 282-286). Both of these discoveries were made in East Anglia, in the county of Suffolk, and include an Anglo-Saxon galley, amidships of which a mass of weapons was found, as well as gold personal ornaments and silver dishes, all for use in the next world; a great hoard of fourth century Roman silver, a Roman treasure, which seemingly had been buried in the ground for safe-keeping, near a Roman-British house, at the time of the Anglo-Saxon invasion.

"Roman London," is by W. F. Grines of the London Museum (*CJ* 42, 379-382) is an important work; also "A Stroll around the Roman Forum," by Shirley Smith (*CJ* 42, 486-492). "Rambles among Latin Inscriptions" A. E. Gordon (*CJ* 42, 151-155), is interesting and popular in the best sense. "More Rambles among Latin Inscriptions," by A. E. Gordon (*CJ* 42, 493-96), deals with such themes as life, death, love, wine, women, and song.

"Who Read Virgil in Zin?" is the intriguing title of an article by H. D. Colt, on papyri found at Auja, an ancient fortress on the southern border of Palestine, built by Theodosius I at the end of the fourth century against the Arabs. These documents deal with historical, economic, social, and literary matters, as, *e.g.*, a seventh-century codex MS of the *New Testament* (see *CJ* 42, 315-323).

P. Collart, "Les Fragments des Tragiques Grecs sur Papyrus" is a complete list, to date, giving 155 fragments of plays as found in Egyptian papyri. The article gives full information about the fragments and their sources (*CW* 40, 119).

C. H. Beeson, "The MSS of Bede" (*CP* 42, 73-87) is a remarkable study. Blanche B. Boyer, "Insular Contribution to Mediaeval Literary Tradition on the Continent" (*CP* 42, 209-222), stresses the prodigious activity of Irish and Anglo-Saxon scribes, both at home and abroad.

FINALIA

The wide range of the following studies shows the versatility and the vitality of classical scholarship.

Prof. A. W. Van Buren's "War-Time Productivity in Italy" (*AJP* 68, 1-20) is an astounding story of what Italian scholars accomplished during the years 1940-July 1946; great names appear, as Bignone, Lugli, Maiuri, deSanctis—proofs of heroic courage under most adverse circumstances and of intense interest in all phases of antiquity (cf. *CW* 40, 67, on life of Pompeii, during wartimes, and the dangers experienced by Della Corte).

We are constantly receiving books, and news about books published abroad during the hardships of war (see *CP* 42, 135 seq.) E. Bignone, *Storia della Letteratura Latina* (3 vols., Firenze) (for rev., *CR* 61, 62-64); R. Bloch, *Les Origines de Rome,* Paris; M. van den Bruwaene, *Études sur Cicéron, Bruxelles* (cf., also, *CW* 40, also pp. 48, 56, 63-64).

The *Classical Journal* publishes a valuable "A Check List of Recent Books" (*CJ* 43, 118-122), including, among others: a new Roman edition of Lucretius; the new Rand *Servius,* published by the American Philological Association; H. W. Garrod, *Scholarship; Its Meaning and Value;* D. P. Harding, *Milton and the Renaissance Ovid* (see rev., *CP* 42, 132-133); H. Mattingly, *Man in the Roman Street;* H. A. Sanders, *Latin Papyri in the University of Michigan Collection* (*CJ* 43, 185-186); the new Ernout: *Lucrèce;* H. J. Haskell, *The New Deal in Old Rome* (Knopf, N. Y., 1947), which receives high praise from the eminent English scholar, Hugh Last.

Honor Volume of Classical Essays to James A. Kleist, Classical Essays (St. Louis University, 1946) (rev., *CJ* 42, 374-375). Such volumes, evidence of affectionate appreciation of a scholar's service, are always welcome. This one has several essays, contributed by well-known classicists, covering a wide field, varying from Homer to the Church's debt to Homer. Father Sullivan's "Virgil's Mezentius" is of special importance for teachers of Virgil (*CW* 41, 109-111).

From Pretoria, South Africa, comes a distinguished volume: *Christians and Pagans, from Constantine to St. Augustine,* Part I. *The Religious Policies of the Roman Emperors* (Union Booksellers), by H. Muller.

Equally notable is the wartime book, *Phyllobolia, für Peter Von der Mühl,* published in Basel, Switzerland, containing five essays (see rev., *CP* 42, 127-130), by Swiss scholars, including "Tacitus u.die antike Schicksalslehre." This learned dissertation argues that Tacitus followed (in the main) the Stoic doctrine—in his beliefs concerning the relation of the individual to Fate.

Mémorial des Études latines is an honor volume dedicated to a great French scholar, Marouzeau, who founded the *Société des Études latines* and its *Revue* (an excellent review of the *Memorial* and of Marouzeau's work appears in the *AJP* 68, 108-109). Each article in the *Memorial* gives a summary of progress in its field, and there are 37 such articles.

Important, scholarly articles continue to appear: "Notes on Roman Magistrates," (*TAPA* 77, 35-43) by T. R. S. Broughton. "Stoic *Apatheia* and Seneca's *De Clementia,*" (*TAPA* 77, 44-52) by W. C. Korfmacher, which shows the conflict, within Stoicism, between theory and practice. "Octavia's Deification at Athens" (*TAPA* 77, 146-150) by A. E. Raubitschek. "Land and Sea Transportation in Imperial Italy" (*TAPA* 77, 220-244) by Cedrick A. Yeo, is an extremely interesting discussion of the difficult problem of costs of transportation. "Linking the Old and the New in Italy" is a charming discussion of many habits inherited from ancient times and still observed in Italy today. Prof. B. McDaniel is a foremost exponent of such invaluable data (*CW* 40, 90-95; 41, 3-9). "Philosophic Doctrine and Poetic Technique in Ovid," is by Phillip DeLacy (*CJ* 43, 153-161). "The Early Roman Calendar," a very careful study of an extremely difficult subject (*CJ* 43, 163-168), by B. M. Allen, who argues thorny problems with the eminent English scholar, H. J. Rose. "Julian Dates and Greek Calendars" (*CP* 42, 235-243) is by W. K. Pritchett.

GREEK LITERATURE

By Royal Case Nemiah
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GENERAL

The increase of interest in Greek studies, predicted in the article on "Greek Literature" in The American Year Book for 1946 (p. 925), has been conspicuous, as well as the attendant increase in the quantity and quality of scholarly activity in this field. Excavation has been resumed in various areas, thus assuring to scholars the raw material for their research. The continued appearance on the commercial stage of plays based on Greek themes is an indication of interest, or at least curiosity, as to things Hellenic. Too much praise can not be given to scholars of foreign birth, who are adding so much to the depth and breadth of Greek scholarship in America by their publications in our journals.* Noteworthy also is the appearance of two volumes in the Loeb Library (Harvard Univ. Press, 1946): *Diodorus Siculus* (vol. 4) translated by C. H. Oldfather and *Dio Chrysostom* (vol. 4) translated by H. L. Crosby.

THE GREEK LANGUAGE

In the field of general language study should be mentioned *An Introduction to Linguistic Science* by E. H. Sturtevant (Yale Univ. Press, 1947). *A Reading Course in Homeric Greek. Second Year Book* by R. V. Schoder and V. C. Horrigan (Chicago, Loyola Univ. Press) is a continuation of the book noticed in The American Year Book for 1946 (p. 925). E. C. Colwell and J. R. Mantey are the editors of *A Hellenistic Greek Reader* (Univ. of Chicago Press, 1947). At the same press in 1947 was published A. Wikgren's *Hellenistic Greek Texts*. G. M. Bolling writes on "Personal Pronouns in Reflexive Situations in the Iliad" (*Language*, 23, 23) and G. M. Messing on "The Etymology of Greek *ho, he, to deina* (*ibid.* 23, 207). J. N. Hough has a good article on literary technique entitled "Terence's Use of Greek Words" (*CW*, 41, 18). An excellent essay on the classical elements in English is F. S. Dunham's "What Language Do You Speak?" (*CJ*, 42, 455).

HOMER AND HESIOD

Significant of contemporary literary taste and public demand is the publication by the Penguin Books Inc. (New York, 1946) of E. V. Rieu's translation of the *Odyssey*. The sales are reported to be good. In his review of it (*CJ*, 43, 111), F. M. Combellack calls it "good bronze for Homer's gold." There is an excellent article by the poetess, J. Ingalls, entitled "Structural Unity of the Iliad" (*CJ*, 42, 399). A good article by E. F. D'Arms and K. K. Hulley, "The Oresteia Story in the Odyssey" (*TAPA*, 77, 207), states that the frequent comparison of Odysseus and his family with the family of Agamemnon is intended to glorify a relatively unimportant family by comparison with the great. A. Feldman, in his "The Apotheosis of Thersites" (*CJ*, 42, 219), shows that Thersites was not a proletarian but of noble birth. His harsh speech in the second book of the *Iliad* was the result of private grudge. The same author, in "Indians and the Iliad" (*CJ*, 43, 19), shows similarities between the folkways of the Homeric Greeks and those of the American Indians. J. Duffy, in "Homer's Conception of Fate" (*CJ*, 42, 477), maintains that "Fate and the will of Zeus are identical." R. McCain, in "English Renderings of *Noon Egno*" (*Odyssey*, I, 2), presents many versions of this phrase in the works of English translators from the Elizabethan Age to our own time (*CJ*, 42, 433). A. Nehring, in "Homer's Descriptions of Syncopes," shows that Homer's "descriptions of fainting spells follow clear types and patterns." A good article about an author too little studied is F. J. Teggart's "The Argument of Hesiod's *Works and Days*" (*JHI*, 8, 45). H. N. Porter's "Hesiod and Aratus" (*TAPA*, 77, 158) is a study of the influence of Hesiod's metrical forms on the work of Aratus.

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* Abbreviations: *AJA, American Journal of Archaeology; AJP, American Journal of Philology; CJ, Classical Journal; CP, Classical Philology; CW, Classical Weekly; HTR, Harvard Theological Review; Hesp., Hesperia; JHI, Journal of the History of Ideas; TAPA, Transactions of the American Philological Association.* Titles of books, monographs, and periodicals are italicized; those of articles are in quotation marks.

LYRIC AND DRAMATIC POETRY

A useful book for classroom use is J. A. Moore's *Selections from Elegiac, Iambic, and Lyric Poets* (Harvard Univ. Pr., 1947). R. Lattimore's translation, *The Odes of Pindar* (Chicago Univ. Press, 1947), is brilliant. H. Fränkel's article, "Man's 'Ephemeros' Nature According to Pindar and Others" (*TAPA*, 77, 131), shows that in early Greek literature the word *ephemeros* did not mean "short-lived" but "subject to the day," "variable"; an appendix lists various connotations of the word. In "The First Elegy of Solon" (*AJP*, 68, 161), R. Lattimore gives a scholarly "explication" of that poem. E. Riess discusses Theognis, Semonides of Amorgos, and Hipponax in his article "On Some Passages from the Greek Lyrics" (*CW*, 41, 59).

A growing interest in Greek drama is apparent. Under the able editorship of Dudley Fitts, *Greek Plays in Modern Translation* (Dial Press, 1947) makes available some of the best Greek plays in the versions of some of the ablest translators of our time. R. A. Brower studies the problem of translation by considering six translations of the *Agamemnon* of Aeschylus and comparing them with the original ("Seven Agamemnons," *JHI*, 8, 383). P. C. Wilson, in "Notes of Freedom Sounded by Aeschylus" (*CJ*, 42, 383), deals with the problems of freedom from slavery, freedom of self-rule, intellectual freedom, and freedom of the administration of justice. The same writer, in a note on Aeschylus' *Eumenides* (881-891), holds that Athena is trying to *persuade* the Erinyes, indicating that "victory by persuasion,—reconciliation, may bring about a union mightier than any triumph" (*CP*, 42, 122).

In "Anouilh's *Antigone* Again" (*CJ*, 42, 207), A. C. Schlesinger writes that the important element in the *Antigone* is not the conflict between divine and human law but the character of A. In "Sophocles, Antigone 904-20" (*CP*, 42, 51), R. E. Wycherley discusses the authenticity of these verses. H. F. Graham contributes an interesting note in "The 'Escape' Ode in *Hippolytus* 732-775" (*CJ*, 42, 275). In his "Echi del Rito Eleusinio" (*AJP*, 68, 82), B. Lavagnini points to references to the Eleusinian mysteries in Euripides' *Suppliants* (53, 470).

The following performances, based on translations or versions of Greek plays, were given during 1947: J. P. Sartre's *The Flies* (*Les Mouches*) based on the *Oresteia* of Aeschylus; a film version of O'Neill's *Mourning Becomes Electra,* dealing with the same theme; Anouilh's *Antigone* at Smith College; Shelley's translation of the *Cyclops* of Euripides at Bowdoin College in honor of Prof. T. Means; Robinson Jeffers' *Medea;* Euripides' *Trojan Women* at Western College (Oxford, O.); while the Boston College Dramatic Club gave Euripides' *Alcestis* in the original Greek. A study in the survival of Greek tragedy is B. M. Marti's "The Prototypes of Seneca's Tragedies" (*CP*, 42, 1).

Comedy, as usual, received less attention than tragedy. H. W. Miller writes on "Some Tragic Influences on the Thesmophoriazusae of Aristophanes" (*TAPA*, 77, 171): "It is the purpose of this paper to note a number of passages in the T. in which tragedy affected the composition of the passage, to indicate the source of the tragic influence, and to analyze its effect upon the style of Aristophanes." By the same author is "On the

Parabasis of the Thesmophoriazusae of Aristophanes" (*CP,* 42, 180), showing how it was influenced by Euripides' *Melanippe Desmotis. Post-Aristophanic Comedy* (Illinois Studies in Language and Literature, xxxi, Nos. 3, 4) is an investigation of the social outlook of middle and new comedy at Athens and Rome. "Comedy and the Comic Poets in the Greek Epigram," by J. M. Raines (*TAPA,* 77, 83), discusses "such Greek epigrams as deal with comedy and the comic poets from the point of view of literary criticism."

MISCELLANEOUS AUTHORS

W. K. Prentice (*AJP,* 68, 73) believes that the ascription of Xenophon's *Anabasis* to an actual Themistagenes as author, or to his name as pseudonym, was due to a misreading of the MS. H. Fränkel, in a "Note on the Closing Sections of Pseudo-Xenophon's Constitution of the Athenians" (*AJP,* 68, 309), interprets the words "dikaios" and "adikos" as meaning "advantageous" and "harmful" to the proletariat. L. W. Daly, in "The Greek Version of Caesar's *Bellum Gallicum,*" attributes this translation to Piero Strozzi, a Florentine professional soldier in French service, rather than to Planudes, as has usually been done. M. Hadas states in "The Religion of Plutarch" (*South Atlantic Quarterly,* 46, 84) that Plutarch's religion was Greek culture. T. Means, in "Plutarch on the Death of Cyrus" (*CW,* 41, 39), asserts that Ctesias was P's source in his *Life of Artaxerxes.* R. Pack in "Notes on the 'Caesars' of Julian" (*TAPA,* 77, 151) shows the relationship between this satire and the Apostate's *Orations,* so important for a knowledge of his Neoplatonism. In the field of New Testament studies should be mentioned B. M. Metzger's *Lexical Aids for Students of New Testament Greek* (Princeton Theological Seminary, 1946); also the stylistic and linguistic notes of R. C. Horn in "Some Notes on the Gospel According to St. Mark (*CW,* 40, 134). C. E. Lutz's "Musonius Rufus, 'The Roman Socrates,'" is a Greek text of this Roman Stoic of the 1st century A.D., with translation and copious notes (*Yale Classical Studies,* 10, 1947).

PHILOSOPHY

Much good work was done in the field of philosophy during the year. There is an excellent article by A.-H. Chroust entitled "Philosophy: Its Essence and Meaning in the Ancient World" (*Philosophical Review,* 56, 19), and in the same journal (56, 127), P. T. Rajn's "The Western and the Indian Philosophical Traditions." G. Vlastos is the author of "Parmenides' Theory of Knowledge" (*TAPA,* 77, 66), in which he discusses fragment 16 of Parmenides as part of his doctrine of sense perception, not of the theory of knowledge.

H. Cherniss has done a most valuable piece of work in his two installments of "Some War-time Publications Concerning Plato" (*AJP,* 68, 113; 68, 225), covering the major work done in the field of Platonic scholarship both here and abroad. *The Doctrine of the Imitation of God in Plato* appeared at the King's Crown Press (New York, 1946). Two good articles in a journal full of excellent work are P. Merlan's "Form and Content in Plato's Philosophy" (*JHI,* 8, 406) and M. Beck's "Plato's Problem in the Parmenides" (*ibid.* 8, 232). In her "A Note on the Timaeus of Plato" (*CW,* 40, 133), F. B. Anderson points out that in this dialogue, according to Plato, God is without envy. An old, but ever new, theme is treated by W. B. Ready in "Plato and the Essential Education" (*Education,* 68, 11). Important is J. P. Maguire's "Plato's Theory of Natural Law" (*Yale Classical Studies,* 10, 1947).

Much excellent work has been done on Aristotle. Outstanding here are G. Boas' "Aristotle's Presuppositions about Change" (*AJP,* 68, 404), R. McKeon's "A's Conception of the Development and the Nature of Scientific Method" (*JHI,* 8, 3), and the same author's two installments of "A's Conception of Language and the

Arts of Language" (*CP*, 41, 193; 42, 21); P. Merlan's "A's Unmoved Movers" (*Traditio*, 4, 1); and A. H. Gilbert's "A's Four Species of Tragedy (*Poetics* 18) and their Importance for Dramatic Criticism" (*AJP*, 68, 363). An interesting article chiefly on Aristotle's zoölogical writings by a biologist who is also a humanist is T. S. Hall's "The Twentieth Century Biologist Rereads His Aristotle" (*CJ*, 43, 13). Also appeared L. Cooper's *Aristotle on the Art of Poetry* (Cornell Univ. Pr., 1947) and the same author's "'Hamartia Again'—And Again" (*CJ*, 43, 49), in which he reiterates his statement that characters in tragedy suffer as the result of moral flaws.

In an article entitled "The Successor of Speusippus" (*TAPA*, 77, 103), P. Merlan shows that Aristotle was eligible for the headship of the Academy at the death of Plato's successor, Speusippus. M. T. Herrick is the author of *The Fusion of Horatian and Aristotelian Literary Criticism, 1531-1555. Illinois Studies in Language and Literature* (Univ. of Illinois Press, 1946). Two excellent articles on Epicurus are N. W. DeWitts' "Epicurus: Philosophy for the Millions" (*CJ*, 42, 195) and J. H. Turner's "Epicurus and Friendship" (*CJ*, 42, 351). Two studies in Stoicism are W. C. Korfmacher's "Stoic 'Apatheia' and Seneca's *De Clementia* (*TAPA*, 77, 44), a study of origins and survivals; and R. W. Pack's "Two Sophists and Two Emperors" (*CP*, 42, 1), dealing with Marcus Aurelius and Aelius Aristides, Julian and Libanius.

A good article in the field of aesthetics is M. C. Nahm's "The Theological Background of the Theory of the Artist as Creator" (*JHI*, 8, 363). A very important work is H. A. Wolfson's *Philo* (Harvard Univ. Press, 1947), a study of the development of Philo's thought, which became the basis of Christian, Jewish, and Moslem philosophy. Finally, a charming article by C. Murley entitled "In Praise of the Less Abundant Life" (*CJ*, 42, 331), dealing with aspects of Greek thought through a study of Greek uses of the negative. A summary, with apologies, might run: Sweet are the uses of adversatives.

HISTORY AND CHRONOLOGY

The meager amount of activity in the field of Greek history is surprising in an age of social science. G. Bonfante, in "Who Were the Philistines?" treats the subject from the point of view of ethnology and origins (*AJA*, 50, 251). A discussion based chiefly on epigraphic data is W. Wallace's "The Demes of Eretria" (*Hesp.*, 16, 115). C. Edson's "Notes on the Thracian *Phoros*" deals with the extent of Athenian control in the Thermaic Gulf (*CP*, 42, 88). A. Billheimer, in "Ta Deka aph' Hebes" (*TAPA*, 77, 214), states that the phrase means "the first ten year-classes." Two biographies of Alexander the Great are H. Lamb's *Alexander of Macedon* (Doubleday, 1946) and *Alexander the Great* by C. A. Robinson (Dutton, 1947). A good book in a field about which too little is known is E. V. Hansen's *The Attalids of Pergamon* (Cornell Univ. Pr., 1947).

The chronology of the prehistoric age is treated in S. S. Weinberg's "Aegean Chronology: Neolithic Period and Early Bronze Age" (*AJA*, 51, 165). W. K. Pritchett and W. Neugebauer are the authors of *The Calendars of Athens* (Harvard Univ. Press, 1947). By Pritchett also is "Months in Dorian Calendars" (*AJA*, 50, 358). In "The Intercalary Year 157-6" (*Hesp.*, 16, 224), J. H. Kent concludes from inscriptional evidence that this year was intercalary. In "L'Archonte Athénien Dioclès (139-138 B.C.), G. Daux discusses the date of Diocles (*Hesp.*, 16, 55). B. D. Meritt discusses the same period in his "The Attic Archons Diokles-Timarchos" (*AJP*, 68, 195). W. K. Pritchett, in "Julian Dates and Greek Calendars" (*CP*, 42, 235), criticizes W. B. Dinsmoor's "Archaeology and Astronomy" (*TAPA*, 70, 95) and rejects archaeology as a handmaid of the calendar in favor of astronomy. J. A. Notopoulos, in "The Date of the Creation of Hadrianis" (*TAPA*, 77, 53), maintains that in the year 126/7 the Athenian tribe Hadrianis was created and the Athenian Council reduced from 600 to 500.

RELIGION AND MYTHOLOGY

An interesting article on religious history is G. Chittenden's "The Master of Animals" (*Hesp.*, 16, 89), in which, through the evidence of art, he traces the tradition of Hermes from Minoan to classical times. F. Solmsen has an important article entitled "Strata of Greek Religion in Aeschylus" (*HTR*, 40, 211). M. P. Nilsson, in "The Dragon and the Treasure" (*AJP*, 68, 302), shows that the idea of the dragon as protector of treasure has its origin in the cult of Asclepius. In "Apollon Onos" (*CP*, 42, 223), A. H. Krappe states that there was an Apollo cult among the Hypoboreans of the North Sea coast and that the sacrificial animal of the deity was an ass. H. R. Immerwahr, in "Choes and Chytroi" (*TAPA*, 77, 245), proves from vase paintings that the Dionysiac revelries of the Choes (the second day of the Anthesteria festival) were carried over to the beginning of the Chytroi (the third day). A. E. Raubitschek shows by inscriptional evidence (*TAPA*, 77, 146) that Anthony and Octavia were worshipped at Athens in 39/8 B.C. as gods. A passage from the *Suasoriae* of the elder Seneca (1, 6-7) suggests that Octavia was identified with Athena Polias. An important article of M. P. Nilsson's is "Greek Mysteries in the Confession of St. Cyprian" (*HTR*, 40, 167). G. B. Schwab's *Gods and Heroes*, long known in Germany, now appears in an English translation by O. Marx and E. Morwitz, beautifully printed and illustrated with reproductions from vase paintings (New York, Pantheon Press, 1946).

ART AND ARCHAEOLOGY

Increased activity in the domain of art and archaeology is a cheering evidence of the end of the war. In the prehistoric field should be noted H. J. Kantor's "The Aegean and the Orient in the Second Millennium B.C. (*AJA*, 51, 1). J. L. Heller's "Labyrinth or Troy Town" (*CJ*, 42, 123) shows that "a peculiar geometrical design is associated with the Labyrinth of Cnossus, the walls of Troy, the evolutions of a Greek dance, and a game performed by Roman youths on horseback." "Eleusis and the Eleusinian Mysteries" (*CJ*, 43, 131) is an archaeological treatment of this interesting subject. E. P. Blegen's "News Items from Athens" (*AJA*, 50, 370) is an account of the present state of archaeology in Athens. W. B. Dinsmoor writes on "The Hekatompedon on the Athenian Acropolis" (*AJA*, 51, 109). H. A. Thompson's "The Excavation of the Athenian Agora 1940-1946" (*Hesp.*, 16, 193) is a review of the work on that site. G. M. A. Richter discusses "An Athenian Gravestone" (*Bull. Met. Mus. of Art*, *5*, 179).

D. H. Robinson reports on *Excavations at Olynthus, Pt. XII: Domestic and Public Architecture* (The Johns Hopkins Univ. Studies in Archaeology, No. 36. Johns Hopkins Univ. Press). From discoveries made in 1946, O. Broneer writes on "The Corinthian Altar Painter" (*Hesp.*, 16, 214). Further reports on the work at Dura-Europos are made by N. P. Toll in *The Excavations at Dura-Europos—1935-6; Part 2, The Necropolis* (Yale Univ. Pr., 1946). C. Hopkins writes on "The Siege of Dura" (*CJ*, 42, 251), an account based on archaeological evidence of the siege of Dura-Europos of which no ancient written or epigraphical record survives. G. M. A. Richter discusses "A Fourth Century Bronze Hydria in New York" (*AJA*, 50, 361). G. H. McFadden is the author of "A Tomb of the Necropolis of Ayios Ermoyenis at Kourion" (*AJA*, 50, 449). An interesting article is F. A. Norwood's "Attitude of the Ante-Nicene Fathers toward Greek Artistic Achievement" (*JHI*, 8, 431). G. Downey writes "On Some Post-Classical Greek Architectural Terms" (*TAPA*, 77, 22). O. Waldhauer discusses "Myron's Anus

Ebria and the Drunken Woman in Munich" (*AJA,* 50, 241).

In the field of Ceramics are to be noted G. M. A. Richter's *Attic Red-Figured Vases, A Survey* (Yale Univ. Pr. 1946); D. Von Bodmer, "The Taleides Amphora (550-525)" (*Bull. Met. Mus. of Art, 5,* 221); also his "An Amphora of the Polyphemos Group" (*ibid.* 5, 131); M. J. Milne, "Peleus and Akastos" (*ibid.* 5, 255); D. K. Hill, "What the Women Did" (*CJ,* 42, 202); V. Grace, "Wine Jars" (*CJ,* 42, 443); and L. B. Lawler, "A Dancer's Trophy" (*CW,* 41, 50).

INSCRIPTIONS

In the field of inscriptions the following articles should be noted: J. S. Creaghan and A. E. Raubitschek, "Early Christian Epitaphs from Athens" (*Hesp.,* 16, 1); M. and E. Levensohn, "Inscriptions on the South Slope of the Acropolis" (*Hesp.,* 16, 63), with notes by W. R. Merkel (*ibid.* 75); C. P. Loughran and A. E. Raubitschek, "Three Attic Proxeny Decrees" (*Hesp.,* 16, 78); B. D. Meritt, "An Athenian Treaty with an Unknown State" (*AJP,* 68, 312); "Greek Inscriptions" (*Hesp.,* 16, 147); and "The Persians at Delphi" (*Hesp.,* 16, 58); M. T. Mitsos, "Greek Inscriptions" (*Hesp.,* 16, 82); W. K. Pritchett, "Greek Inscriptions" (*Hesp.,* 16, 184); C. B. Welles, "The Garden of Ptolemagrius at Panopolis" (*TAPA,* 77, 192), a discussion of a fragment found at Panopolis (Egypt) in 1938. In the field of papyrology, E. H. Gilliam's "The Archives of the Temple of Soknobraisis at Bacchias" is a study of these documents with translation and commentary (*Yale Classical Studies,* 10, 1947).

MISCELLANEOUS

In this section are noted books and articles on a wide variety of subjects not classifiable under the above sections. A. E. Kober attacks the difficult but most important problem of deciphering the Minoan language in "Inflection in Linear Class B: 1. Declension." (*AJA,* 50, 268). A very interesting volume of essays on Greek culture (history, literature, geography), is V. Ehrenberg's *Aspects of the Ancient World* (Salloch, New York, 1946). L. B. Lawler continues her studies on the Greek dance in "A 'Mortar Dance'" (*CJ,* 43, 34), "The Geranos Dance—a New Interpretation" (*TAPA,* 77, 112), and "The Dance in Ancient Greece" (*CJ,* 42, 343). D. G. Burrage writes on "Education in the Homeric Age" (*CJ,* 43, 147).

In "Papyri in Classical Education" (*CJ,* 43, 12) A. W. Calhoun discusses the importance of papyri as throwing light on the New Testament and suggests the value of an elementary Greek book based on the papyri. Two articles on ancient law are H. J. Wolff's "The Origin of Judicial Litigation among the Greeks (*Traditio,* 4, 31) and E. W. Lacy on "Law and Justice in Antiquity and the Middle Ages" (*JHI,* 8, 373). W. H. S. Jones is the author of "Philosophy and Medicine in Ancient Greece with an Edition of 'Peri Archaies Ietrikes'" (*Bull. of the History of Medicine,* Supp. 8. Johns Hopkins Press, 1946).

In the field of music is "The Auloi of Meroë" by N. B. Bodley (*AJA,* 50, 217). In numismatics is to be noted P. W. Lehman's *Statues on Coins of Southern Italy and Sicily in the Classical Period* (New York, H. Bittner & Co., 1946). W. W. Hyde writes on *Ancient Greek Mariners* (New York, Oxford Univ. Press, 1947). A Greek survival is discussed by T. S. Brown in "Greek Influence on Tiberius Gracchus" (*CJ,* 42, 471). In *Plato and Milton,* I. Samuel discusses a problem in comparative literature. (Cornell Univ. Pr., 1947). A. C. Schlesinger is the author of "Can We Moderns Write Tragedy?" (*TAPA,* 77, 1).

In "The Genesis of Neoclassical Tragedy" (*South Atlantic Quarterly,* 46, 93), E. Roditi shows that the Italian tragedians of the sixteenth century, in following the principles of Aristotle's *Poetics,* led to Elizabethan and French neoclassical tragedy.

K. Lever's "Greek Comedy on the English Stage" (*CJ*, 42, 169) is a good study on Greek influences in Renaissance England. J. Hutton continues his studies in comparative literature with *The Greek Anthology in France and in the Latin Writers of the Netherlands to the Year 1800* (Cornell Univ. Pr., 1946). Part I of H. Baker's *The Dignity of Man* (Harvard Univ. Pr., 1947) deals with the Hellenic idea of man. Sir A. Zimmern, in "Athens and America" (*CJ*, 43, 3), compares and contrasts the two societies. In the field of fiction based on Greek antiquity should be mentioned G. Baker's *Paris of Troy* (New York, Ziff-Davis, 1947), O. F. Grazebrook's *Nicanor of Athens* (Macmillan, 1947), and L. Marcuse's *Plato and Dionysius* translated by J. Ames (Knopf, 1947).

SEMITIC LANGUAGES AND LITERATURES*

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GENERAL

In this field, one of the most noticeable results of the cessation of the war is the great increase in the publication of books. Comparing 1947 to 1946, in view of the continued importance of the Near East in world affairs, the increase of material dealing with this section of the world is of note. The American Year Book for 1946 referred to an address by Dr. E. A. Speiser in which he pointed out the importance of the Near East as one of the keys to world power. A full discussion of this subject has been published by Dr. Speiser in his *The United States and the Near East* (Harvard University Press), presenting in detail the background and present situation.

Of general interest to Semitists are a number of books and articles. Edward J. Jurgi has edited a book, a symposium, *The Great Religions of the Modern World* (Princeton University Press). The symposium includes articles on Judaism and Islam. A similar work is Gerald R. Berry's *Religions of the World* (Barnes and Noble), in which are given a view of these religions from primitive times to the present. Students of Semitic art will be interested in Kirk Weitzmann's *Illustrations in Roll and Codex* (Princeton University Press), a study of the origin and method of text illustration. Two further items of general interest are found in *BASOR*. The first is a typographical index to the *Bulletin*, Numbers 71 to 100, found in the February issue. The second is a number of important comments by W. F. Albright on numerous publications received by the *Bulletin*, to be found in the issues of February and April.

ARCHAEOLOGY

K. L. Kelso and J. Polin Thorley have combined to give us "A Ceramic Analysis of Late-Mycenaean and Other Late-Bronze Vases from Jett in Palestine." Nelson Glueck describes "Some Chalcolithic Sites in Northern Gilead." This article is accompanied with plates of the sherds. In a short note, W. F. Albright discusses the name of "The Late Bronze Town at Modern Djett." He identifies it with the Amarna Gitipadalla. These are found in *BASOR* for December, 1946. Yigael Sukenik, in the *Bulletin* for April, writes, "On the Technique of Khirbet Kerak Ware."

Semitists interested in human origins will welcome the article, "Asiatic Prehistory and the Origin of Man," by Robert J. Braidwood in *JNES* for January. This is a review article of four books: *Early Man and Pleistocene Stratigraphy in Southern and Eastern Asia,* by H. L. Movius, Jr.; *Research on Early Man in Burma,* by Hellmut De Terra and H. L. Movius, Jr.; *Giant Early Man from Java and South China* and *The Skull of Sinanthrapus Pekinensis,* by Franz Weidenreich.

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* ABBREVIATIONS. *JAOS, Journal of the American Oriental Society; JBL, Journal of Biblical Literature; JCS, Journal of Cuneiform Studies; JNES, Journal of Near Eastern Studies; JQR, Jewish Quarterly Review; BA, Biblical Archaeologist; and BASOR, Bulletin of the American Schools of Oriental Research.*

Three articles have been published on ancient coins. The first two are by E. L. Sukenik, and were published in *JQR* for January and October, bearing the titles, "Horde of Coins of John Hyrcanus," and "Some Unpublished Coins of Aelia Capitolina." Of these, the former is a description of 63 coins said to have been found in Beth-Sahur, near Bethlehem, bearing the inscription of Jehohanan, the High Priest; while the latter describes coins struck by members of the family of the emperor Traianus Decius. The third article is a contribution of Sir Alexander S. Kirkbride, "Some Rare Coins from Transjordan," with plates, published in *BASOR* for April.

Leroy Waterman in *JNES* for July, discusses, "The Treasuries of Solomon's Private Chapel." The same publication for July carries an article by A. Leo Oppenheim, "Fiscal Practice of the Ancient Near East." It is maintained that temple administrative technique migrated from Babylon to Persia and from there to Jerusalem. Of interest in the field of art are two books by Miss E. Porada, *Mesopotamian Art in Cylinder Seals of the Pierpoint Morgan Library* (Pierpont Morgan Library), and, *Seal Impressions of Nuzi* (The Annual of the American Schools of Oriental Research); and *Five Thousand Years of Gems and Jewelry,* Revised Edition, by Frances Rogers and Alice Beard (Lippincott). An illustration of cultural borrowing is shown in the art of the period by Miss Helene J. Kantor in "The Shoulder Ornament of Near Eastern Lions," found in *JNES* for October. Isaiah Sonne discusses "The Paintings of the Dura Synagogue," in the *Hebrew Union College Annual* (Vol. XX). In the same volume, F. Landsberger presents his "The Origin of the Winged Angel in Jewish Art."

CUNEIFORM STUDIES

One of the most notable contributions in this field is the appearance of a new periodical, *The Journal of Cuneiform Studies,* edited by Dr. A. Goetze. In the first number of this new periodical is an article by the editor, "The Akkadian Passive." An important book is also to be noted from the pen of Dr. Goetze entitled, *Old Babylonian Omen Texts* (Yale University Press). In the second number of *JCS,* A. Leo Oppenheim discussed "Deictic -ka, -kunu in Neo-Babylonian." Charles -F. Jean gives, in the second number of *JCS,* in transliteration and translation, eight letters from Mari, under the title "Lettres de Mari." G. R. Driver, in *JCS* (Number 1), discusses "Additions to the Cuneiform Syllabary." George E. Mendenhall gives corroboration for a reading BIR_5 in the Amarna Letters in an article, "The Message of Abdi-Ashirta to the Warriors," published in *JNES* for April. Further important chronological data is furnished by O. Neugebauer in "A Table of Solstices from Uruq," in *JCS* (Number 2). In Volume I of *JCS,* his collaborator on a recent book, A. Sachs, discusses "Two Neo-Babylonian Metrological Tables from Nippur." Homer H. Dubs gives a supplement to Neugebauer's Lunar Canon in *JNES* for April, "A Canon of Visible Penumbral Lunar Eclipses for the Near East and Egypt from 1400 to 1000."

JCS (Number 2) also contains an article by Nikolaus Schneider, "Der Sangu als Verwaltungsbehorde und Opfergabenspender im Reiche der Dritten Dynastie von Ur." Samuel N. Kramer reports on work done at Istanbul in *BASOR* for December 1946 and February 1947. In the second, he lists briefly the nature of the 112 Nippur tablets, inscribed with Sumerian epics and myths, copied on his recent trip to Istanbul. The same author discusses "Gilgamesh and the Land of the Living" in *JCS* (Number 1). A new treatment of this famous epic is A. Heidel's *Gilgamesh and Old Testament Parallels* (University of Chicago Press), a translation with notes. S. R. Kraus of Istanbul in *JCS* (Number 2), discusses "Die Istanbuler Tontafelsammlung," and gives two plates. *JCS* (Number 1) also contains René Labat's "Note sur la conjugaison élamite."

Three articles on Hittite Studies are included in *JCS*. In Number 1, H. Pedersen discusses, "Hittite dalagnula and barganula." In Number 2, Sedat Alp discusses, "La désignation de Lituus en hittite." While Dr. A. Goetze takes a different position in his, "The Priestly Dress of the Hittite Kings," in the same issue.

R. G. Kent continues his Persian studies in *JAOS* for January, "On Some Old Persian Inscriptions of Darius I." Those interested in background material will welcome the book of Ernst Herzfeld, *Zoroaster and His World* (Princeton University Press).

EGYPTIAN

H. E. Winlock has written, *The Rise and Fall of the Middle Kingdom in Thebes* (Macmillan). Emil Ludwig's *The Nile, The Life Story of a River*, translated into English by Mary H. Lindsay, was republished in a deluxe edition (Garden City Publishing Co.). In *JNES* for July, William F. Edgerton presents "The Government and the Governed in the Egyptian Empire." He describes it as an autocratic bureaucracy, highly centralized in principle and to a great extent centralized in practice. The same author, in the October number of *JNES*, discusses "The Nauri Decree of Seti I: A Translation and Analysis of the Legal Portion." He concludes that this decree did not weaken the autocratic government but rather regulated the practices of the officers.

Valuable information on Egyptian philology and texts appeared during 1947. In *JNES* for January, William F. Edgerton discusses "Stress, Vowel Quantity, and Syllable Division in Egyptian." A. S. Yahuda, in the March *JBL*, lists and discusses, "Hebrew Words of Egyptian Origin." Keith C. Seele gives a description of two "Cippi of Horace" amulets with translation of the text, under the title "Horace on the Crocodiles" in *JNES* for January. In the same publication for July, Miriam Lichtheim discusses "Situla Number 11395 and Some Remarks on Egyptian Situlae." Kurt Pfluger, in *JAOS* of April, discusses "The Private Funerary Stelae of the Middle Kingdom and Their Importance for the Study of Ancient Egyptian History."

JNES for April carries Marie-Louise Buhl's "The Goddess of the Egyptian Tree Cult," containing a list of the Egyptian names with their Greek counterpart, as well as a similar list of the sacred groves. To the study of Egyptian Art, Georg Steindorff has added *Catalogue of the Egyptian Sculptures in the Walters Art Gallery, Baltimore* (Walters Art Gallery). "The Artist of the Egyptian Old Kingdom," being a review article of W. S. Smith's *A History of Egyptian Sculpture and Painting in the Old Kingdom* (Oxford University Press), is presented by John A. Wilson in *JNES* for October. James Henry Breasted, Jr., who gave us a bibliography of Steindorff in *JAOS* (Vol. 66, Number 1) gives "Steindorff's Bibliography: Additions," in *JAOS* for April. Jean Sainte Fare Garnot and Claire Lalouette collaborate to give "Bibliographie des egyptologues français, 1940-1946" in *JAOS* for April.

CANAANITE

"The Phoenician Inscriptions of the Tenth Century, B. C. from Byblus" by W. F. Albright, in *JAOS* for July, shows the import of these inscriptions on the question of Ugaritic-Phoenician relationships and on the orthography of Hebrew. In the same issue of *JAOS* Julian Obermann gives, with text and translation, a discussion of "How Baal Destroyed a Rival." Another Ugaritic text is treated by H. Neil Richardson in *JBL* for September, "A Ugaritic Letter of a King to His Mother." This is the letter originally published in Syria (Number 21, 1940). Other

Ugaritic material is found in two reviews of H. L. Ginsburg's, *The Legend of King Keret* (American Schools of Oriental Research). The first is by T. H. Gaster, in *JQR* for January, and the second by C. H. Gordon in *BASOR* for February.

SOUTH SEMITIC

Of interest to many will be the republication of the second edition of R. A. Nicholson's *Elementary Arabic; Second Reading Book; Third Edition* (Macmillan), and Carl Brockelmann's *History of the Islamic Peoples* (Putnam), translated from the German by Joel Carmichael and Moshe Perlmann. There is included a review of events 1939 to 1947 by Perlmann. Three other books of a more general character are A. R. Nykl's *Hispano-Arabic Poetry and Its Relation with the Old Provençal Troubadours* (Hispanic Society), M. S. Diamond's, *A Handbook of Mohammedan Art* (Hartsdale House, N. Y., second edition revised and enlarged), and M. J. Steiner's *Inside Pan-Arabia* (Chicago University Press), which gives a review of political and economic factors of the past and present. *JQR* for July gives a contribution from the pen of H. A. Wolfson, "Arabic and Hebrew Terms for Matter and Elements, with Special Reference to Saadia."

HEBREW AND ARAMAIC

Of interest to students of Hebrew will be the new impression of the second English edition of F. H. W. Gesenius' *Hebrew Grammar* (Oxford, Toronto). Two elementary grammars of Hebrew appeared in 1946. *Hebrew Self-Taught* (Zionist Organization), by Z. and B. Scharfstein, and *Modern Hebrew; A First Year Course* (Hebrew Publishing Co., N. Y.) by H. Blumberg and M. H. Lewittes. Hebrew philological matters are treated in a number of articles. In *JBL* for March is found T. H. Gaster's "An Ancient Eulogy of Israel: Deuteronomy 33:3-5 and 26-29." In the same publication for September, J. Reider discusses, "Etymological Studies: YD^c or YR^c and R^{cc}." "Notes on the QAL Infinitive Construct and the Verbal Noun in Biblical Hebrew," by H. M. Orlinsky, is found in *JAOS* for April. "A Hebrew Incantation Against Night Demons from Biblical Times," being a new interpretation, with text of the tablet from Arslan-Tash, by H. Torczyner, is found in *JNES* for January. Nehemiah Allamy of Jerusalem discusses "An Unknown Manuscript of Ben Qoheleth" in *JQR* for October. A lengthy re-examination of the much-discussed subject of Hebrew poetic meter is presented in *JBL* for March by Steven Byington. He concludes that Hebrew has quantitative meter of syllables of three ordinary lengths.

An *Album of Dated Syriac Manuscripts* (Harvard University Press) has been published by W. H. P. Hatch. G. M. Lamsa has published *New Testament Origin* (Ziff-Davis, Chicago). Further evidence on this question of the Aramaic origins of the New Testament is found in *JBL* for March in the article by D. K. Andrews entitled "The Translation of Aramaic *DI* in the Greek Bible." The question under discussion is as to whether translations from Aramaic can be distinguished from documents composed originally in Greek. *Babylonian Talmud in Selection* (Second Edition, Nezikin) has been released. Of general interest will be S. D. Goitein's *From the Land of Sheba; Tales of the Jews of Yemen* (translated into English by Christopher Fremantle, Shocken).

BIBLICAL

An important publication is the book edited by Harold R. Willoughby, entitled *A Study of the Bible Today and Tomorrow* (University of Chicago Press). The individual chapters are by outstanding scholars who give a picture of what the current trends in Biblical research are, and what studies can and should be undertaken in the immediate future. G. Ernest Wright's "Biblical Archaeology Today," in *BA* for February, presents further material on the subject upon which he writes in the book edited by Willoughby. The same publication presents a study of "The Manna of Sinai" by F. S. Bodenheimer of the Hebrew University, Jerusalem. Bodenheimer takes the position that this is a biological phenomenon of the dry desert. The September issue of *BA* gives a study, "The Tabernacle—a Study from an Archaeological and Historical Approach," by Frank M. Cross, Jr. Pan-Babylonianism is revived when the flood story receives two treatments by Emil G. Kraeling. The first is in the July issue of *JAOS* and is entitled "Xisouthros, Deucalion and the Flood Traditions." The second is "The Earliest Hebrew Flood Story" in *JBL* for September. In the latter he discusses the Babylonian patterns found in the J stratum. In the former he appeals to Orientalists and Old Testament scholars on the ground that even late flood stories preserve elements of great antiquity and should be considered. In *JNES* for October, the same author has written on "The Significance and Origin of Genesis 6:1-4." G. L. Feinberg, in his "Parallels to the Psalms in Near Eastern Literature," published in *Bibliotheca Sacra* for July-September, presents another view of the origin of ideas in semitic literature.

The Inter-Testamentary period receives consideration in *JQR* for January when S. Zeitlin, in his article "The Apocrypha," considers the importance of this literature for an understanding of Judaism and early Christianity. The same author in the July issue discusses "The Assumption of Moses and the Revolt of Bar Kokba." The discussion of "Jerusalem 201-199 B. C. E. on the History of a Messianic Movement," commenced in *JQR* (1946) by Eugene Taubler, is continued in the January and October issues of *JQR*. Elias J. Bickerman presents a study of "The Warning Inscriptions of Herod's Temple" in *JQR* for January.

A number of useful tools for Biblical studies were printed or reprinted during the year. Among these is the seventh edition of the *Commentary on the Whole Bible* of Jamieson, Faucette, and Brown (Zondervan). Another is *The Oxford Cyclopedic Concordance* (Oxford). G. E. Wright and F. B. Filson have combined to edit the *Westminster Historical Atlas to the Bible* (Presbyterian Board). Professor Steinmueller, who in 1946 gave us his fifth printing of *Special Introduction to the Old Testament* (Joseph F. Wagner, N. Y.), now gives us his *Companion to the Old Testament* (Wagner, N. Y.).

There are a number of books and articles on miscellaneous themes as follows: Millar Burrows, *An Outline of Biblical Theology* (Westminster Press); J. Phillip Hyatt, *Prophetic Religion* (Abingdon-Cokesbury); J. H. Greenstone, *Jewish Feasts and Fasts* (Bloch); C. A. Simpson, *Revelation and Response in the Old Testament* (Columbia University Press); R. V. G. Tasker, *The Old Testament in the New Testament* (Presbyterian Publications); R. Calkins, *Modern Message of the Minor Prophets* (Harper); B. J. Louis, *Theology of Psalm VIII* (Catholic University of America); G. Matthews, *The Religious Pilgrimage of Israel* (Harper); and *Philo Judaeus* (Harvard University Press), edited by Harry A. Wolfson, in which foundations of religious Philosophy in Judaism, Christianity and Islam are discussed.

Articles are found as follows: W. F. Albright, in *JBL* for December, "The Names Nazareth and Nazarene." In the same periodical for September is Charles C. Torrey's, "The Messiah, Son of Ephraim," being a consideration of the two divine beings to appear on earth at the end of the present age. In *JBL* for September, J. K. Mikliszanski discusses "The Law of Retaliation and the Pentateuch," in which it is pointed out that Hebrew law is based on legal justice, not on the private person's right to retaliate. In *JNES* for April, W. E. Staples writes on "Some Aspects of Sin in the Old Testament," and in the same issue, C. Umhau Wolf gives "Traces of Primitive Democracy in Ancient Israel." In *JBL* for September, Sabatino Moscati discusses "The Wind in Biblical and Phoenician Cosmogony." He suggests that the Hebrews added the contributions of their own originality to the common Semitic tradition and culture. It is in this same issue of *JBL* that Dr. James A. Montgomery considers "A Modern Translation of the Hebrew Bible Compared with the Ancient Versions," being a critical survey of an English version of the Hebrew text of Job in *The Holy Scriptures According to the Massoretic Text; A New Translation* (Jewish Publication Society).

H. A. Fischel considers the theme "Martyr and Prophet" in the January and April issues of *JQR*. In *JQR* for October, 1946, David Daube writes on, "The Last Chapter of Esther," showing the political purpose of Esther. S. Zeitlin in the April 1947 *JQR*, contributes an article on "Prosbol; A Study in Tannaitic Jurisprudence." E. J. Young gives us "The Study of Isaiah Since the Time of Joseph Addison Alexander" in the *Westminster Theological Journal* for November, 1946. In *JNES* for April, "Note on Psalm 109" is written by Harold L. Creager, in which he maintains that verses six to nineteen are curses heaped by adversaries on the writer and not *vice versa,* and quoted by the writer. "The Holy Man in Israel: A Study in the Development of Prophecy" is contributed by Claude Sauerbrei in *JNES* for October. Three articles of interest to the Biblical scholar are found in the *Hebrew Union College Annual* (Vol. XX); "The Chanukkah Festival and the Calendar of Ancient Israel" by J. Morgenstern; "Cushan-Rishathaim" by Eugene Taeubler; "Hebrew Installation Rites" by Raphael Patai.

SLAVIC LANGUAGES AND LITERATURES

By Anthony J. Klancar
Editor and Writer

RUSSIAN LANGUAGE AND METHODOLOGY *

New problems are confronting teachers of Russian. Some solutions may be found in such articles as Agnes Jacques' "Why Students Study Russian" (*MLJ* 31, No. 8, 525-534). The author found that they study the language because of an interest in the economic and political life, the culture, or the social structure of Russia. From John G. Frank's "Hints for Teaching Russian" (*MLJ* 31, No. 1, 21-24), it is clear that "the acquisition of a basic vocabulary is much more important for the learning process of the Russian language than grammar." Harry Josselson's "Russian Word Count" (*MLJ* 31, No. 7, 422-425) tells of the work of the AATSEEL Russian Word Count Committee under the chairmanship of the writer of the article.

RUSSIAN LITERARY HISTORY

Except for the brilliant interlude of the Symbolists and the period after 1910 the history of Russian contemporary literature is the history of Russian fiction. This is clearly indicated in Prof. Janko Lavrin's *An Introduction to the Russian Novel* (Whittlesey House). After a brief survey of seven centuries of Russian fiction, Professor Lavrin devotes the rest of the book to the major 19th century novelists and, in the last chapter, to the development of Soviet fiction. In reviewing this work, Prof. E. J. Simmons has this instructive criticism to offer regarding the pedigree of the Russian realistic novel: "Recent Soviet scholarship in the field (fiction), however, suggests the interesting possibility that Dostoevsky, and not Gogol, was the actual originator of what Belinsky called the 'Naturalistic School' of Russian Fiction."

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* Abbreviations used for periodicals are: *ARSU—American Review on the Soviet Union, ASEER—American Slavic and East European Review, BA—Books Abroad, BPIASA—Bulletin of the Polish Institute of Arts and Sciences in America, MLJ—Modern Language Journal, PAS—Polish American Studies, PR—Polish Review, PT—Poland of Today, RR—Russian Review.*

Another book, Helen Muchnic's *Introduction to Russian Literature* (Doubleday), is rather a remarkable piece of literary criticism than a literary history. After an all too brief discussion of the folk and early written tradition, the rest of the book is devoted to Pushkin, Gogol, Turgenev, Dostoevsky, Leo Tolstoy, and Chekhov. To Professor Muchnic, Russian literature is a "voice of men, and not of systems." Read side by side with George Reavey's *Soviet Literature Today* (Yale Univ. Press), one realizes what a grisly role writers have to play in a totalitarian state. Covering Soviet literature after 1941, Reavey's book makes an excellent supplement to Gleb Struve's recent *Twenty-Five Years of Soviet Russian Literature*. For a short, concise treatment of the Russian language (378-830), literature (384-408), drama, and the theatre (409-421) see Ernest J. Simmons' *USSR: A Concise Handbook* (Cornell Univ. Press).

"Soviet Russian Literature in 1946" (*SPT* 2, No. 8, 24-29) reveals a search for new themes, the best work of the year being Panov's *Sputniki* which "paints a majestic portrait of the common Soviet Man in the accomplishment of his historic exploit." Other themes are the veteran's return home, family life, youth in revolt (P. Zamoisky's *Molodost*), and idealized pictures of the past. A Soviet critic's appraisal of the literary accomplishments during the 29 years of the existence of the Soviet State, with special emphasis on the literature written during the war, may be found in Konstantine Simonov's "Literature of the Soviet People" (*SRT* 15, No. 12, 8-9, 22-23). Joshua Kunitz's "Soviet Literature—a Mirror of Soviet Life" (*SRT* 16, No. 7, 28-30, 40) has the additional value of giving the theory behind Soviet literature, its socialist realism and the consequent ruthless realism in depicting the vicissitudes of Soviet existence.

RUSSIAN LITERARY CRITICISM

Soviet writers continue to occupy literary critics. Probably the most interesting of this crop of writings is Eugene Almazov's "On the 'Tendentious' in Literature" (*Mainst ream* 1, No. 2, 199-211), a defense by a Soviet critic. According to Almazov "Soviet writers are tendentious in the sense that they express the tendencies that exist and have emerged victorious in Soviet life. To the Soviet reader, this constitutes a merit, no matter how it may be frowned upon by certain critics." Vera Sandomirsky in her article on "Leonid Leonov and the Party Line" (*RR* 6, No. 2, 67-76) is one critic who frowns upon such work. One of the really good writers in Russia today, Leonov has so far refused to toe the Party Line. His best work deals with "marginal" people outside the pale of the new Soviet society.

Leonid I. Strakhovsky's subject "Anna Akhmatova—Poetess of Tragic Love" (*ASEER* 6, Nos. 16-17, 1-18) lends itself to fine writing, for Akhmatova's poetry is personal and autobiographical, sentimental in a simple human way; her main theme is love. She is, indeed, "the last flower of the noble Russian Culture, the guardian of poetical piety," as the critic Aikhenvald once said of her. A chapter in a forthcoming book on *The Acmeist Poets of Russia,* Professor Strakhovsky's "Osip Mandelstam—the Architect of Words" (*RR* 7, No. 1, 61-70) gives promise of an absorbing study of Gumilev's Guild of Poets. Gumilev himself has said of Mandelstam: "He has used to perfection the knowledge that not a single image has an independent meaning and is needed only for the purpose of revealing the poet's soul as fully as possible." A wonderful sonority, form, and eloquence are Mandelstam's main characteristics.

In writing about "Nikolai Nekrasov, Poet of the Russian People" (*BA* 21, No. 4, 393-395), Boris Kader reminds us of the greatness of this people's poet who was and is the personification of civic poetry, based on the forms of the Russian folk song. Alexei Tolstoy, famous for his historical ballads, was a contemporary of Nekrasov. Jules Bernard's "Notes on Alexei Tolstoy's *Harold Svenholm*" (*ASEER* 6, Nos. 16-17, 79-91) offers proof that the poem is not a translation of an English ballad as once supposed, but an original Russian poem.

Worth noting is Waclaw Lednicki's "Tolstoy Through American Eyes" (*Slavonic Review* 25, No. 65, 455-477), a criticism of Ernest J. Simmons' *Leo Tolstoy*. Professor Lednicki writes that Simmons has succeeded in "securing to him the most recent knowledge of many events in the life of Tolstoy, of problems connected with his art and philosophy, and of interpretations of the works of the great Russian writer."

Illuminating a little known side of Rilke's poetry, Samson Soloveitchik and E. E. Gladding deal in "Rilke's Original Russian Poems" (*Modern Language Notes* LXII, No. 8, 514-522) with eight Russian poems written by the great German poet. The comments on Rilke's knowledge of Russian should prove interesting to the student of Russian verse.

RUSSIAN BIOGRAPHY

Practically a reprint of the author's previous *A Great Russian Realist* (1913), *Fyodor Dostoevsky* (Scribner) tries to explain the charges leveled at Dostoevsky and stresses that his own life was very like the lives of the people in his novels. A straight biography, there is little literary criticism in the book. As a critical interpretation of the great Russian realist's novels, Janko Lavrin's *Dostoevsky* (Macmillan) should be read together with biographies by Carr, Simmons, etc. According to Professor Lavrin, Dostoevsky set up Freud and the modern psychological novelists in business.

RUSSIAN FICTION

Two anthologies of Russian literature in English translation which deserve the heartiest reception appeared this year. Avrahm Yarmolinsky's *The Portable Chekhov* (Viking) offers the best of Chekhov as represented by 28 short stories in his best moods and method. The anthology includes *The Cherry Orchard, The Boor,* and a selection of letters. It would be advisable to read Kornei Chukovski's "Friend Chekhov" (*Atlantic Monthly* 180, No. 3, 84-90), a delightful pen portrait of Chekhov whose main theme in all his work was "the crying senselessness and fruitlessness of the sufferings to which one group of people, for some reason or other, subjects others."

B. G. Guerney's *Portable Russian Reader* (Viking) is almost entirely devoted to short fiction with about one-third belonging to the time since the Revolution of 1917. Yarmolinsky's *Treasury of Great Short Stories: Pushkin to Gorky* was reissued by Macmillan in 1947.

RUSSIAN DRAMA

Russian drama is comparatively poor by the side of the novel. Yet the plays of Griboedov, Pushkin, Gogol, Ostrovski, who was Russia's first professional dramatist, Tolstoy, Chekhov, Gorky, and Andreyev have found a place in anthologies of world drama. The first important new play of the Soviet regime was Mayakovski's *The Mystery Bouffe*. Realistic drama of the struggle with the changing tempo of Soviet life has given way to plays striving toward a fuller comprehension of the individual's problems in a collectivist society. See H. W. L. Dana's "Russian Drama" (*Clark-Freedley*, 370-481).

The Soviet stand on "The Drama, the Theatre and Life" (*SPT* 2, No. 1, 11-16) is given by Konstantine Simonov who insists that the dramatist must know life and the demands of the people, must portray the Soviet man as a man building a socialist society and professing the ideals of communism. A dramatic performance is an artistic as well as a political phenomenon, and the portrayal of a hero in a Soviet play is a political question for the actor. Whether Simonov achieves these objectives may be seen from his play *The Whole World Over* (Dramatists Play Service), which was produced on Broadway in 1947. See review of this play in *Catholic World* (165, 168-169, My).

The current theatre in the USSR is discussed in David Tutaév's "In Search of an Everyman" (*Theatre Arts* 31, 35-37, Ag). Actors and audience are brought together in several war plays with the sole idea of "informing men in the best reason for living." What has been the taste of the Soviet theatregoer is shown statistically in "Analysis of Soviet Theaters and their Repertoires as of 1941" (*ARSU* 8, Nos. 3-4, 82-85). In Sergei Bertensson's excellent article on "The Premiere of 'The Inspector General'" (*RR* 7, No. 1, 80-95) we get a vivid picture of opening night of one of the world's greatest plays.

A chapter in Prof. Mikhail M. Morozov's book of the same name, "Shakespeare in the Soviet Union" (*ARSU* 8, No. 2, 3-15) surveys briefly research aid for theatres, character interpretation, annual Shakespeare conferences, university study of the Bard, and problems of Shakespearean scholarship. "Our study of Shakespeare is in many ways based on the experience of the theatre. On the other hand, our theatres which produce Shakespeare usually seek the help of the Shakespearean scholars."

POLISH LITERARY CRITICISM

Studies by two young American critics are an encouraging sign for Polish Studies. Victor Erlich's "Beniowski and *Don Juan*" (*Symposium* 1, No. 2, 87-98) has written more "an attempt at a literary parallel." Juljusz Slowacki, one of Poland's greatest Romantic poets, wrote a Byronic satire, *Beniowski*, which in many ways surpasses the English model. Albina I. Kruszewska and Marion M. Coleman's "The Wanda Theme in Polish Literature" (*ASEER* 6, Nos. 16-17, 19-35) is a brief survey of the rise and development of the Wanda theme with a few of its many applications in literature. Wanda, the ideal Polish maiden, is a combination of Elaine, Cordelia, and Boadicea.

The Polish critic, Richard Matuszewski, clearly states the trend of "Polish Literature and the War" (*PT* 2, No. 3, 10-11) and "Polish Post-War Prose" (*PT* 2, No. 12, 3-4) toward realism, expressed in the diaries and documentary prose fiction with their topics taken from war experiences at home and abroad. This movement back to realism has found its chief expression in Tadeusz Breza's prize-winning novel *The Wall of Jericho*, the tales of Jerzy Andrzejewski, and the novels of Ksawery Pruszynski. Polish prose "still presents a wide range of trends and styles, but the elements of psychology and of the grotesque are much more closely related to real life." Prof. Waclaw Lednicki's "Behind the Curtain of Indifference: Recent Polish Literature" (*Journal of Central European Affairs* 7, No. 1, 74-80) reviews five books, published in New York and Poland in 1946, with a range of subjects from general discussion of Polish literature, an anthology, the biography of a city to poetry before, during, and after the war.

MICKIEWICZ AND SIENKIEWICZ

Literature on Poland's best known literary figures increases in volume yearly. Leopold Wellisz's "The Friendship of Margaret Fuller D'Ossoli and Adam Mickiewicz" (*BPIASA* 4, 83-122) gives us a vivid picture of the famous friendship, using their correspondence of 1847-1849, written in France and Italy, as the basis of his discussion. The musical uses of Mickiewicz's poems have been many since 1827, we learn from Arthur and Marion Coleman's *Mickiewicz in Music* (Klub Polski, Columbia). Of special interest is a new composition by Henryk Nagorka, a young Polish-American composer. There is also an essay on the composers who wrote the music to Mickiewicz's lyrics.

Other sidelights on Mickiewicz may be found in the same authors' "Polonica and Connecticut" (*PAS* 4, Nos. 1-2, 6-15) and Adam Mickiewicz's little known short story "Zevila" (*PR* 7, No. 1, 8-9).

Paderewski's "Eulogy on Sienkiewicz" (*PR* 7, No. 1, 6), delivered upon occasion when the Polish novelist's ashes were returned from Vevey, Switzerland in 1924, is an important literary appraisal. A photograph of "The Elderly Gentleman with the Rose" (*BPIASA* 4, 79-82) is used by Jan Lechon to symbolize what was most important in Sienkiewicz who "believed that beauty is the supreme good, that art is a consolation and escape." Consequently, his novels have many appeals. Anthony J. Klancar's "Folklore in Sienkiewicz's Famous Trilogy" (*PR* 7, No. 8, 8-9) deals with what appeals to a folklorist. Jeremiah Curtin, the "discoverer" of Sienkiewicz in America, forms the central subject of Marion M. Coleman's "Sienkiewiczana at Columbia University" (*PR* 7, No. 3, pp. 4, 12).

POLISH DRAMA

The first considerable dramatists of the modern period were, according to M. M. Coleman's "Polish Drama" (*Clark-Freedley,* 493-502), Stanislaw Przybyszewski and Gabryela Zapolska, exponents of "art for art's sake" and naturalism; but the genius of the period was Stanislaw Wyspianski whose *The Wedding* deserves a high place among the world's greatest dramas. The main dramatist of Free Poland (1920-1930) was Jerzy Szaniawski. In the period before the invasion of Poland, the trend away from realism set in and there followed a period of dramatic doldrums. Richard Matuszewski's "The Theatre in Post-War Poland" (*PT* 2, No. 6, 10-13) brings us up to date about the work of Ludvik Solski, Stefan Jaracz, and Leon Schiller, all great names in the Polish theatre.

Each year Slav-American theatre groups put on plays by their favorite old country playwrights. The most active of these groups are the Polish communities in Chicago and New York. Matthew J. Strumski's "The Beginnings of the Polish American Theatre" (*PAS* 4, Nos. 1-2, 31-36) brings together for the first time facts of considerable interest to the student of the immigrant theatre in America.

POLISH LANGUAGE AND LITERATURE

A much-needed teaching aid is supplied by Sister M. Edwina's "A Polish Standardized Test" (*PAS* 4, No. 1-2, 19-30), consisting of reading, vocabulary, and grammar tests. The 4,825 teachers engaged in Polish instruction will find this test a time-saver. Also useful is Joseph F. J. Baluta's *Practical Handbook of the Polish Language* (Pol. Bk. Imptg. Co.).

Lucia Merecka's collection of *Polish Folk-Tales* (Sheed & Ward) consists of the favorite stories of Polish children, adapted to American taste. It is a good addition to the small body of Slavic folk-tales published in recent years.

CZECH LITERATURE

If Leo Lania's "Europe's Battered Muse" (*Sat. Rev. Lit.* 30, 10-11, Ap 19) is read in conjunction with F. C. Weiskopf's "Literature in Czechoslovakia" (*UN World* 1, No. 7, 56-57), one gets a good idea of Czech literature before, during, and after the war. Translations, native non-fiction, and reports on the war are the most popular. In poetry, recent volumes by Seifert, Halas, and Holan are the pride of Czech letters.

Beginning with a short account of the Czechoslovak theatre during the war, "Return to Action" (*Theatre Arts* 31, No. 8, 18-25) by Alan Schneider and Frantisek Vrba resolves itself into a discussion of the past theatrical season in Prague, its revived theatres, plays native and foreign—"a theatre and drama in which reality of human life is the most miraculous and precious thing in the world." The older "Czech (Bohemian) Drama" (*Clark-Freedley,* 504-512) is examined by M. M. Coleman. One of the greatest phenomena in modern Czech dramatic literature is Jaroslav Hilbert. Newer dramatists are Fr. Langer, K. Capek, Rudolf Medek, Frana Sramek, etc.

Pavel Eisner argues in his absorbing article on "Franz Kafka and Prague" (*BA* 21, No. 3, 264-270) that, though Kafka wrote in German, his spirit is Slavic and belongs to Czech Prague. "It is absolutely clear to me that Kafka's work could originate only in Prague and nowhere else."

INDO-EUROPEAN LINGUISTICS *

By George S. Lane
Professor, University of North Carolina

THE LINGUISTIC INSTITUTE

With the 1947 session at Ann Arbor, it may be said that the Institute was once again on a pre-war basis. The expectation of sufficient enrollment of advanced graduate and post-doctoral students warranted the inclusion of such courses as Italic Dialects, Pāli, and Tocharian in the Indo-European field, but the trends of language study during the war were not ignored. Considerable emphasis was again placed on the descriptive method and on problems of language teaching which had grown out of the Intensive Language Program and the language instruction in the Area and Language classes of the Army Specialized Training Program (cf. The American Year Book, 1943, p. 900 f., 1944, p. 928 f.). The courses in the Institute were augmented by weekly luncheon conferences and a series of weekly evening lectures, for which scholars not on the regular staff were brought to Ann Arbor. The general aim of these lectures and discussions was to center attention on the relations between descriptive and comparative linguistics and upon controversies in methodologies in linguistic science (cf. The American Year Book, 1946, p. 942 f.).

GENERAL CONTRIBUTIONS

The year saw the publication of *An Introduction to Linguistic Science* by E. H. Sturtevant, professor emeritus of Linguistics in Yale University (Yale University Press, 1947). The effort at production of an elementary introduction to the science "for readers with no previous knowledge of linguistics" is a welcome one. Attention has already been called (The American Year Book, 1946, p. 943 f.) to the major task before the linguist: the promotion of the knowledge of his science beyond the immediate circle of specialists. Sturtevant's book, while not designed for popular entertainment, is a long step forward in the direction of a competent elementary textbook for beginning college classes in linguistics.

Problems of Indo-European comparative grammar are treated by G. M. Messing, "Selected Studies in Indo-European Phonology" (*Harvard Stud. Class. Phil.* LVI-LVII, 163-232), chiefly a criticism of various features of the laryngeal hypothesis (see The American Year Book 1942, p. 902). Likewise the Columbia Dissertation of Benjamin Schwartz, "The Root and its Modifications in Primitive Indo-European" (*Language Diss.* No. 40, Baltimore, 1947), is based upon the same hypothesis and the assumption of Indo-Hittite, according to Sturtevant. Less controversial are the articles by F. Mezger, "Some Indo-European Formatives" (*Word* 2. 229-240), T. H. Maurer, "Unity of the Indo-European Ablant System: The Dissyllabic Roots"

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* Abbreviations: *MLN—Modern Language Notes; JAOS—Journal of American Oriental Society; AJP—American Journal of Philology; Gmc. Rev.—Germanic Review; PMLA—Publications of the Modern Language Association; Lang.—Language; Class. Phil.—Classical Philology; JEGPh.—Journal of English and German Philology; TAPA—Transactions of the American Philological Association.*

(*Language* 23, 1-22); and Ernst Pulgram, "Indo-European Personal Names" (*ibid.* 189-206). The author of the latter article argues that the simple appellative, familiar from Latin, was the oldest type, not the dithematic type of name generally assumed on the basis of Indic, Greek, and Germanic.

In view of the quarrel over methodology already mentioned (above, with reference), R. A. Hall, Jr., has given us a welcome exposé of the theories of the Italian school of areal linguists in "Bartholi's Neolinguistica," (*Language* 22. 273-283).

That the journal of the "Cercle linguistique de New York," *Word* has become, as it were, more and more the organ of expression of those scholars who lean toward the "mentalistic" approach to language studies, might be deduced from two recent articles: Margaret Schlauch, "Early Behaviorist Psychology and Contemporary Linguistics" (*Word* 2. 25-36), and A. Nehring, "The Functional Structure of Speech" (*ibid.* 195-209).

Two theoretical contributions to the descriptive method are made by E. A. Nida. The one is a textbook or "practice manual" for beginners *Morphology: The Descriptive Analysis of Words* (Univ. of Michigan Publ. in "Linguistics," vol. II), the other "Field Techniques in Descriptive Linguistics" (*IJAL* 13. 138-146). Special articles illustrating the method are those by R. S. Wells, "Immediate Constituents" (*Language* 23. 81-117) and W. G. Moulton, "Juncture in Modern Standard German" (*ibid.* 212-226). Mention must be made also of K. L. Pike's monograph, *Intonation in American English* (Ann Arbor, 1946). Of general interest also is the continuation of W. F. Leopold's observations *Speech Development of a Bilingual Child* (vol. 2): *Sound-learning in the First Two Years* (Northwestern Univ. Studies in the Hum. 11, Evanston, 1947).

Yet one more title should be mentioned here, that of the report of a special commission appointed by the American Council on Education: R. J. Matthew, *Language and Area Studies in the Armed Services, Their Future Significance* (Washington, 1947, cf. above with references).

INDO-IRANIAN

P. Tedesco has continued his painstaking studies in the field of Sanskrit lexicography and etymology by contributions on "Sanskrit *mala-* 'Wreath'" (*JAOS* 67. 85-106), "Sanskrit *pudgala-* 'body'" (*ibid.* 172-177), and Sanskrit *adaḥ* 'illud'" (*Language* 23, 118-124). R. G. Kent, in spite of illness, continues his Old Persian studies with "On Some Old Persian Inscriptions of Darius I" (*JAOS* 67. 30-33) and L. H. Gray, in "A Suggested Restoration of the Hao o t Nask" (*ibid.* 14-23), attempts to reconstruct the original Avestan text by transcribing it into a more nearly original alphabet and transcribing this in turn into Latin letters.

TOCHARIAN

G. S. Lane has contributed the first translation of a longer text in "The Tocharian Puṇyavantajātaka: Text and Translation" (*JAOS* 67. 33-53).

CLASSICS

The dean of Homeric scholars, G. M. Bolling, continues his studies with two contributions: "The Personal Pronouns of the Iliad" (*Language* 22. 341-3) and "Personal Pronouns in Reflexive Situations in the Iliad" (*ibid.* 23. 23-33). G. M. Messing has contributed another interpretation of a troublesome word in "The Etymology of Greek ὁ, ἡ, τὸ δεῖνα" (*Language* 23. 207-211), and Miss E. A. Hahn again shows her preference for syntactic studies by the discussion "Are the Homeric Subjunctive and Optative Future Tenses?" (*TAPA* LXXVII 318-19). A significant, if slight, contribution to etruscology is made by H. M. Hoenigswald in his study "The Phonology of Etrusco-Roman Names" (*ibid.* 319).

GERMANIC

In the field of etymology, we may cite two studies by F. Mezger, one "Gothic *managei*" (*Language* 22. 348-53), the other "Gothic *aglaiti* 'unchastity', OE *aglæc* 'distress' (*Word* 2. 68-71), and two by R. A. Fowkes "Crimean Gothic *cadariou* 'miles, soldier'" (*JEGPh.* XLV, 448-9), and "Two Germanic Etymologies" (*Language* 22. 347-8). A. M. Sturtevant continues his gleanings in Gothic and Norse with three contributions "Gothic Morphological Notes" (*JEGPh.* XLVI, 92-97), "Notes on Old Norse Phonology" (*Scand. Studies* 19, 208-216), and "Some Irregular Forms in Old Norse" (*MLN* LXII, 255-58). In an article entitled "Prehistoric 'Cultural Strata' in the Evolution of Germanic: The Case of Gothic" (*MLN* LXII, 522-539), G. K. Zipf attempts to apply statistical methods to the solution of the problem involved. H. Penzl attacks two phonological problems, one, "The Development of Germanic *ai* and *au* in Old High German" (*Gmc. Rev.* XXII, 174 ff.), concerning the question of basing conclusions regarding phonetic changes on orthographic fluctuations, the other, "The Phonemic Split of Germanic *k* in Old English" (*JEGPh.* 23. 34-42). L. M. Hollander, in "Middle High German *sch*" (*JEGPh.* LXVI, 82-91), reviews the chronology of the change OHG [sk] Germ. [š].

CELTIC

For British, R. A. Fowkes presents two etymological studies: "Some Brythonic Cognates of English sward" (*Language* 22. 435-6) and "Welsh Etymologies" (*Word* 2. 48-49). Other studies are those by V. Hull, "Archaic Irish *inda*" (*Language* 22. 343-45) and by N. M. Holmes, "Postvocalic *s* in Insular Celtic" (*ibid.* 23. 125-136).

PERIODICAL PUBLICATIONS

American Historical Review
8 N. 6th Street, Richmond, Va.
American Literature
Duke University Press, Durham, N. C.
American Scholar
5 E. 44th Street, New York City.
American Speech
Columbia University Press, New York City.
Atlantic Monthly
8 Arlington Street, Boston.
Books Abroad
University of Oklahoma Press, Norrow, Okla.
Catholic Historical Review
Catholic University Press, Washington, D. C.
Classical Journal
Washington University, St. Louis, Mo.
Classical Philology
5750 Ellis Ave., Chicago.
Classical Weekly
4200 Fifth Ave., Pittsburgh, Pa.
Commonweal, The
386 Fourth Ave., New York City.
Editor and Publisher
1475 Broadway, New York City.
English Literary History
Johns Hopkins Press, Baltimore, Md.
Germanic Review
Columbia University Press, New York City.
Harper's Magazine
49 East 33rd Street, New York City.
Harvard Graduates Magazine
Harvard University, Cambridge, Mass.
Harvard Studies in Classical Philology
Harvard University, Cambridge, Mass.
Journal of American Oriental Society
329 Sterling Memorial Library, New Haven, Conn.
Journal of English and German Philology
University of Illinois, Urbana, Ill.
Journal of the History of Ideas
New York City College, Convent Ave., & 139th Street, New York City.

Journal of Modern History
5750 Ellis Ave., Chicago.
Journal of Negro History
1538 9th Street N.W., Washington, D. C.
Journal of Southern History
Louisiana State University, Baton Rouge, La.
Kenyon Review
Kenyon College, Gamber, O.
Language
Mount Royal & Guilford Aves., Baltimore, Md.
Library Journal
62 W. 45th Street, New York City.
Library Quarterly
5750 Ellis Ave., Chicago.
Mid-America—An Historical Review
Loyola University, Chicago.
Mississippi Valley Historical Review
Lincoln, Neb.
Modern Language Quarterly
Johns Hopkins Press, Baltimore, Md.
Modern Philology
5750 Ellis Ave., Chicago.
Nation, The
20 Vesey Street, New York City.
New England Quarterly
200 Stevens Hall, Orono, Maine.
New Republic, The
40 East 49th Street, New York City.
Pacific Historical Review
University of California Press, Berkeley, Calif.
Philological Quarterly
State University of Iowa, Iowa City, Ia.
P M L A
Modern Language Association of America, 100 Washington Square E., New York City.
Poet Lore
30 Winchester Street, Boston.
Poetry
232 East Erie Street, Chicago.
Publishers Weekly
62 West 45th Street, New York City.
Romanic Review
Columbia University Press, New York City.
Saturday Review of Literature
25 West 45th Street, New York City.
Sewanee Review
University of the South, Sewanee, Tenn.
South Atlantic Quarterly
Duke University Press, Durham, N. C.
Southwestern Historical Quarterly
Texas State Historical Association, Austin, Tex.
Speculum
Mediaeval Academy of America, 1430 Massachusetts Ave., Cambridge, Mass.
Studies in Philology
University of North Carolina Press, Chapel Hill, N. C.
Travel
116 East 16th Street, New York City.
Virginia Quarterly Review
University of Virginia, Charlottesville, Va.
William & Mary Quarterly
College of William & Mary, Williamsburg, Va.
Yale Literary Magazine
Yale Station, New Haven, Conn.
Yale Review
New Haven, Conn.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

AMERICAN ACADEMY OF ARTS AND LETTERS, 633 W. 155th St., New York City.
AMERICAN ACADEMY OF ARTS AND SCIENCES, 28 Newbury St., Boston.
AMERICAN BOOKSELLERS ASSN., 35 E. 20th St., New York City.
AMERICAN COUNCIL OF LEARNED SOCIETIES, 1219 16th St., N.W., Washington, D. C.
AMERICAN INSTITUTE OF GRAPHIC

Arts, 115 East 40th Street, New York City.
American Library Assn., 520 N. Michigan Ave., Chicago, Ill.
American Newspaper Guild, 63 Park Row, New York City.
American Newspaper Publishers' Assn., 370 Lexington Ave., New York City.
American Philosophical Assn., Wesleyan University, Middletown, Conn.
American Philosophical Society, 104 S. Fifth St., Philadelphia, Pa.
American Society of Composers, Authors and Publishers, 30 Rockefeller Plaza, New York City.
Associated Press, The, 50 Rockefeller Plaza, New York City.
Association of National Advertisers, 285 Madison Ave., New York City.
Bibliographical Society of America, 100 Washington Square, E., New York City.
Book Publishers Bureau, 347 Fifth Ave., New York City.
Foreign Publicity Service, 77 Bowery, New York City.
National Committee of the United States of America on International and Intellectual Cooperation, 405 West 117th Street, New York City.
National Editorial Assn., 188 W. Randolph St., Chicago, Ill.
National Institute of Arts and Letters, 633 W. 155th St., New York City.
National Publishers' Assn., 232 Madison Ave., New York City.
PEN Club—American Center, 16 East 96th Street, New York City.
Society of American Archivists, Menasha, Wis.
United Press Assn., 220 E. 42nd St., New York City.
U. S. Publishers Assn., Inc., 386 Fourth Ave., New York City.

AMERICAN LITERATURE

American Dialect Society, Woman's College of the University of North Carolina, Greensboro, N. C.
Authors Guild, 6 E. 39th St., New York City.
Authors League of America, Inc., 6 E. 39th St., New York City.
Catholic Writers Guild of America, 128 W. 71st St., New York City.
National Assn. for American Speech, 1150 Fifth Ave., New York City.
Simplified Spelling Board, 1 Madison Ave., New York City.
Walt Whitman Society of America, 250 Fulton Ave., Hempstead, N. Y.

LANGUAGE AND LITERATURE

American Classical League, Vanderbilt University, Nashville, Tenn.
American Oriental Society, 329 Sterling Memorial Library, New Haven, Conn.
American Philological Assn., Swarthmore College, Swarthmore, Pa.
American Speech Correction Association, University of Minnesota, Minneapolis, Minn.
Classical Association of the Middle West and South, Washington University, St. Louis 5, Mo.
Dickens American Fellowship, 570 Lexington Ave., New York City.
International Arts and Letters, 457 West 57th Street, New York City.
Linguistic Society of America, 2019 Lanier Drive, Silver Spring, Md.
Modern Language Assn. of America, 100 Washington Square E., New York City.
Shakespeare Association of America, Inc., 601 West 113 Street, New York City.

HISTORY

American Antiquarian Society, Worcester, Mass.
American Association for State and Local History, Box 6101, Washington, D. C.
American Catholic Historical Association, 1312 Massachusetts Avenue N.W., Washington, D. C.
American Historical Association, Library of Congress Annex Study Room 274, Washington, D. C.
American Society of Church History, 5757 University Avenue, Chicago, Ill.

Hispanic Society of America, The, 155th Street, West of Broadway, New York City.

Mediaeval Academy of America, 1430 Massachusetts Avenue, Cambridge, Mass.

Mississippi Valley Historical Association, University of Minnesota, Minneapolis, Minn.

National Historical Society, 175 Fifth Avenue, New York City.

Southern Historical Association, Louisiana State University, University, La.

DIVISION XXVI

THE ARTS

ARCHAEOLOGY

By Jotham Johnson
Associate Professor, New York University

GENERAL

What with difficulties of food, fuel, transportation, manpower, and currency in most foreign countries, and a not completely stable political situation in Europe and Asia, archaeology had not entirely regained its post-war feet at the end of 1947. Most archaeologists had resumed their peacetime positions, though a few remained in government service, as Charles R. Morey of Princeton University who continues as Cultural Attaché of the American Embassy in Rome, and several are reported as having returned to military service, as Jerome Sperling of Yale University. Field work was almost at normal in the Americas, but only six or seven American expeditions to the Eastern Hemisphere have been reported, England has virtually withdrawn from overseas work, and the only country widely engaged in active field work abroad is France.

ARCHAEOLOGICAL INSTITUTE ACTIVITIES

The President of the Archaeological Institute of America is again Sterling Dow of Harvard University, and the General Secretary is Stephen B. Luce of the Rhode Island School of Design. The editor of the Institute's official technical quarterly, the *American Journal of Archaeology,* is again John Franklin Daniel of the University of Pennsylvania Museum. Because of editorial and printing difficulties, this journal had fallen some months behind schedule; Dr. Daniel, by publishing six issues in a few months, has restored it to its regular schedule. The Institute has entered on two new publishing adventures: the *Archaeological Newsletter,* of which two issues appeared in 1946 and five in 1947, and a non-technical quarterly, *Archaeology,* edited by Jotham Johnson, of which the first issue was scheduled for publication Dec. 31, 1947. Four local societies—Lehigh Valley, Lynchburg, Washington, and western Massachusetts—were organized or reestablished during 1947. The annual meeting of the Institute was held at Yale University, Dec. 29-31.

AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS

The titular director of the Athens School is Rhys Carpenter of Bryn Mawr College, but he has not taken up residence, and Oscar Broneer is acting director. Shirley Weber continues as librarian of the Gennadeion Library, administered by the school. No summer session was held in 1947, but, as of Oct. 1, the school was on as nearly normal a footing as conditions permitted with full staff and eight students in residence. A summer session, to be directed by Louis E. Lord, is being planned for 1948. Members of the school staff have inaugurated a series of open lectures on the history and monuments of Athens; these have attracted audiences of 130 or more.

The school's excavations in the Athenian Agora, directed by Homer A. Thompson, now of the Institute for Advanced Study, Princeton, were active in 1947; the excavations, though devoted primarily to cleaning to bedrock areas previously dug, and to exploring the site of the future museum, yielded several discoveries of consequence, including a Mycenaean chamber tomb of the fourteenth century B.C., with undisturbed burials, other tombs and graves, several important sculptures, and numerous inscriptions, vases and vase fragments, figurines, ostraca, and coins. Plans for the Agora Museum have been drawn and it is hoped that construction can begin in 1948. The Corinth excavations have been limited to routine cleaning and maintenance, but substantial progress has been made in the preparation of the official publications of the site.

Carl W. Blegen of the University of Cincinnati was in the Aegean during the summer, to review his earlier excavations at the site of Troy for the definitive publication, and to plan on the early resumption of his work at Pylos ("Nestor's Palace"), where his few weeks of exploration in 1939 yielded 600 clay tablets in an Aegean syllabary. Karl Lehmann of New York University visited his pre-war excavations on Samothrace, and reported lamentable damage to the excavated area by Bulgarian troops.

SCHOOL OF CLASSICAL STUDIES OF THE AMERICAN ACADEMY IN ROME

The summer sessions of the Rome School were resumed in 1947, again under the direction of Henry Thompson Rowell of the Johns Hopkins University; 19 students attended, and plans are laid for the 1948 summer session. The director of the Academy, Laurance Page Roberts, is in residence, and Frank E. Brown assumed the duties of professor in charge of the School of Classical Studies during the summer. With the opening of the winter session Oct. 1, the school was back in approximately normal operation.

THE JERUSALEM SCHOOL

The Jerusalem School is in as nearly normal operation as the disorderly political conditions permit; no actual digging has been attempted, but field trips have given the students useful experience in surface exploration and familiarity with the topography and the rural life of Palestine. Nelson Glueck, former director of the school, returned to Cincinnati in January and assumed the presidency of Hebrew Union College; Arthur Jeffery of Columbia University, a British subject, who succeeded Dr. Glueck as acting director, narrowly escaped compulsory evacuation during the civil disturbances of the spring. The director for 1947-1948 is Millar Burrows of Yale University. The Baghdad branch of the school continues inactive for the present.

SCHOOL OF AMERICAN RESEARCH

Sylvanus G. Morley has assumed the directorship of the School of American Research, in Santa Fé, succeeding Edgar L. Hewitt who died Dec. 31, 1946. The school had no excavation in progress in 1947, but reports accelerating activity and increased cooperation with the New Mexico Museum and other state archaeological enterprises.

AMERICAN SCHOOL OF PREHISTORIC RESEARCH

Hugh Hencken of the Peabody Museum, Harvard University, continues as director of the American School of Prehistoric Research. The school resumed its summer sessions in 1947 with excavations in palaeolithic and neolithic contexts at the so-called Caves of Hercules, near Tangier in Morocco, and field trips in central France.

EASTERN HEMISPHERE ORGANIZATIONS

In the Eastern Hemisphere, Sumner McK. Crosby of Yale University spent two months excavating at the Basilica of St. Denis, in the northern suburbs of Paris, recovering a unique bas-relief, transitional between Romanesque and Gothic, of the Twelve Apostles, and important new data on the eighth-century, Carolingian, church. Hetty Goldman, of the Institute for Advanced Study, Princeton, resumed her excavations at the great prehistoric and historic site of Tarsus, in southeastern Turkey. Thomas Whittemore of the Fogg Museum, Harvard University, spent his eighteenth consecutive season uncovering mosaics in the great Byzantine church of Santa Sofia, in Constantinople, with results as notable as ever. Bert H. Hill, former director of the Athens School, resumed his excavation on behalf of the University of Pennsylvania Museum at Curium in Cyprus, and P. Dikaios of the Cyprus Museum conducted a trial excavation at the neolithic site of Sotira, near Curium, for the University Museum.

WESTERN HEMISPHERE ORGANIZATIONS

Here the relatively quiet political situation permits normal field routines. The institutions participating in the Viru Valley, Peru, program of the Institute of Andaean Research are understood to be continuing their work. An expedition sponsored by the United Fruit Company, headed by Giles G. Healey and under the general supervision of A. V. Kidder of the Carnegie Institution, has made astonishing discoveries of sculpture and mural paintings at Bonampak in Mexico; Dr. Kidder continues his own explorations in Guatemala. Hellmut de Terra discovered a mesocephalic human skull in a deposit attributed to the close of the latest ice age, at Tepexpan, near Mexico City. The Chicago Museum of Natural History excavated a promising site of the Mogollon Indians near Reserve, in western New Mexico. William A. Ritchie of the Rochester Museum of Arts and Science spent the summer at two Munsee Indian sites on the Upper Delaware river, in northern New Jersey. The University of New Mexico continued its summer field sessions in archaeology and anthropology at Chaco Canyon. Perhaps most important of all, C. Bertrand Schultz, director of the University of Nebraska State Museum, reported the discovery, in April, July, and August of 1947, along Lime Creek in southwestern Nebraska, of three camp-sites of stone-age hunters, in a deposit stated categorically to be interglacial; if confirmed, this will constitute the earliest evidence (20,000 B.C. or earlier) for the presence of man in this hemisphere. These discoveries were made by anthropologists cooperating with the federally financed Smithsonian Institution survey of the Missouri River Basin, of lands to be submerged in 1949 by flood-control projects.

EXHIBITIONS AND COLLECTIONS

At home, a list of highlights of the year, in addition to mention made above, would certainly include the brilliant exhibition of Byzantine and Early Christian Art at Baltimore in the spring, an exhibition of ancient bronzes at the Detroit Institute of Arts, the acquisition of outstanding pieces from the Brummer collection by the Metropolitan Museum of Art, Dr. Francis Steele's recovery, from four fragments found at Nippur in the 1890's and since stored at the University of Pennsylvania Museum, of substantial portions of a Sumerian law-code clearly antedating Hammurabi, the appointment of an energetic young anthropologist, Froelich Gladstone Rainey, as director of the University of Pennsylvania Museum, the formation of the National Council for the Preservation of Historic Sites and Buildings, the organization of the Archaeological Survey Association of Southern California, pointing the way to further cooperative efforts of the sort, and the deaths of Clark Wissler, Ananda K. Coomaraswamy, and George Grant MacCurdy, in this country, and of Franz Cumont, Nicholas K. Roerich, and Julio Tello abroad.

Numerous anxiously awaited publications were reported to be in press; archaeological publications are exhaustively listed in the bibliographical sections of the *American Journal of Archaeology* and the *American Anthropologist;* no attempt, therefore, has been made to repeat the listings here.

PAINTING

By Florence S. Berryman
The American Federation of Arts

LOAN EXHIBITION OF FRENCH TAPESTRIES

The record of 1947 in the field of painting was one of settling down to normalcy. The year lacked the dramatic recoveries and restorations of priceless and historic art treasures by American troops in Europe, and other outstanding happenings such as had enlivened the first 18 postwar months.

The most important international art gesture involved not painting, but tapestry—the loan exhibition from France's cathedrals, chateaux, and museums, through the courtesy of the French Government, of 200 pieces of tapestry representing seven centuries of this superb art with irreplaceable and hence invaluable examples. Sent over as an official expression of gratitude for the United States' wartime and present assistance to France, it came on a man-of-war, the French cruiser *George Leygues*. Installed in the Metropolitan Museum of Art, and opened Nov. 21 (to remain through February 1948), it occupies 24 second floor galleries of the north wing, comprising more than an acre of wall space, and is regarded as the greatest loan of art from Europe to come to the United States. The exhibition begins with the Apocalypse series dating from 1375 and continues to present-day revival of the craft, in modern designs.

THE STATE DEPARTMENT'S TRAVELING EXHIBITIONS

The well-intentioned excursions of the U. S. Department of State into the sponsorship of paintings, ran afoul of two vociferous groups, conservatives and moderns. Both affairs had their beginnings at the end of 1945 and during 1946, respectively, as reported in The American Year Book for 1946 (pages 952-53).

Two collections of oil paintings, entitled "Advancing American Art," comprising 79 works purchased for $49,000 by Leroy Davidson for the State Department for five-year tours of the Eastern Hemisphere and Latin America, respectively, had had their initial showing at the Metropolitan Museum of Art, New York, in October 1946; and their radical character had aroused a number of conservative professional artists' organizations to protest to the Department. Nothing came of these protests at first, but after the 1946 elections, the Hearst press undertook a smear campaign, *Look* magazine reproduced a number of the paintings, and there were blasts over the radio. Women's clubs and other groups began to be aroused early in 1947, and Congress was flooded with letters from indignant taxpayers. President Truman, seeing one of the paintings (Yasuo Kuniyoshi's "Circus Girl") remarked "If that is art, I'm a Hottentot." Published in the press, his comment drew a telegram of approval from a group of Ringling Circus aerialists and bareback riders.

The two exhibitions of "Advancing American Art" had gotten as far as Czechoslovakia and Haiti, respectively, when the storm broke in Congress, and William Benton, Assistant

Secretary of State for Public Affairs, was questioned by a Congressional appropriation committee. The show in Prague had attracted such favorable attention that President Benes asked permission to send it elsewhere in his country, the extra cost of $6,000 to be provided by the Czech Government; and a prominent New York art firm offered to purchase both collections for 50 per cent more than had been paid for them. However, Secretary Marshall was reported to have said, apropos of the affair, "No more taxpayers' money for modern art," and the State Department canceled the tours.

Within a few weeks, in New York City, a meeting to protest the cancellation was called by Progressive Citizens of America, and co-sponsored by Artists Equity and six professional artists' organizations; and The American Federation of Arts, at its 37th annual convention held at the Metropolitan Museum, officially registered its protest. Such actions by a cultural minority had obtained no results by the end of the year. Benton resigned from the State Department Oct. 1, returned to his former position as chairman of *Encyclopaedia Britannica's* board of directors, and was elected chairman of the board of E. B. Films, Inc. He will continue to serve as a special consultant for UNESCO.

GERMAN MUSEUM TREASURES

An interesting postscript to the controversy over the German masterpieces sent to the U. S. in December 1945 for safekeeping and still in the National Gallery's vaults, was a talk by Francis Taylor, director of the Metropolitan Museum of Art, to the American Club of Paris, at the end of a summer tour he made of Germany. Hundreds of thousands of German museum pieces, he said, have disappeared behind the "iron curtain," and, unlike the German treasures in our custody, there is no public record of the Soviet holdings. He was pessimistic as to their future return to Germany, as he had heard that a German wing was being added to the Hermitage Museum in Leningrad.

INDUSTRY'S PATRONAGE OF ART

Pepsi-Cola Company, in its 4th annual competition "Paintings of the Year" bestowed upon 34 exhibiting artists, the largest sum of any annual —$35,950 in awards, fellowships, and purchases of paintings for the 1948 Pepsi-Cola calendar. The company was exemplary in refraining from influencing the selection of entries and awards; it left everything to professional artists, as they had demanded. Consequently, the poor quality of the exhibition of 159 works chosen from more than 4,500 entries from 46 states and the District of Columbia, caused commentators both modern and conservative to berate those responsible for the show, as an inept return for Pepsi-Cola Company's generosity.

The exhibition opened Sept. 30 at the National Academy. First prize, $2,500, went to Henry Kallem for "Country Tenement," mediocre modernism; 2nd, $2,000 to Lamar Dodd; 3rd, $1,500 to Joseph De Martini; 4th, $1,000 to Ethel Weiner; 5th, $750 to Max Weber; and there were 15 others of $500 each. Four fellowships of $1,500 each were again awarded.

Pepsi-Cola Company had reserved the right to buy its own selections for the 1948 calendar, and acquired only two of the prize winning paintings. In November, the Company opened an Opportunity Art Gallery at 9 West 57th Street, New York City, where young artists from many regions of the U. S. are given a chance to show work in the metropolis.

Heller-Deltah Company also increased its awards, giving $6,400 in the 1947 La Tausca Art competition, as against $4,500 the previous year. Abraham Rattner received first prize of $2,000; Philip Evergood, $1,500; Byron Browne, $1,000; Everett Spruce, $750; Yasuo Kuniyoshi, $500; Nicolai Cikovsky, $250; and four others, $100 each. All restrictions as to subject matter had been removed, and the exhibition, entirely invited, opened at the Riverside Museum, New York City, early in the year. Seven paintings were sold for $8,650. The show subsequently was circuited to nine museums.

The Miller Collection, assembled by Mrs. Burton G. Tremaine, Jr. and her husband, president of the firm manufacturing lighting equipment, had its inaugural showing at the Wadsworth Atheneum in Hartford, Conn. the end of the year, and was to be sent on a national circuit in 1948. It is composed of works by the School of Paris and allied experimentalists.

The final impact of the war on art was revealed in the exhibition of 16 paintings shown at Chrysler's International Salon, New York City, in February. Immediately after the war, the Corporation engaged Lt. Col. Charles Baskerville to direct the making of a record by painters with battle experience. They were given wide latitude as to subject, ample time, and adequate compensation. Several of the 16 paintings are notably outstanding: Joseph Hirsch's "The Burden," a deeply moving work; close behind it are Ogden Pleissner's "Tank Break-through at St. Lo," and George Grosz's "Juggernaut." Drawing crowds of approximately 800 a day in New York, the show had to be extended through April, after which it started on a year's tour of museums. It will hang eventually in Chrysler's executive offices.

The Gimbel Pennsylvania Art Collection was presented to the state Oct. 13 at the Pennsylvania Academy of the Fine Arts, Philadelphia. Sponsored by Gimbel Brothers, it comprises 114 oils, watercolors, and drawings, by 14 artists who were commissioned to "create a dramatic record of Pennsylvania and its contemporary people." The majority of the works deals with man in relation to the state's resources, industries, and history. The collection is now on a tour of Pennsylvania cities and towns.

MUSEUM ACQUISITIONS BY GIFT, BEQUEST, AND PURCHASE

Museums and art galleries throughout the United States continued to augment their collections with notable paintings of many schools, of which only a few outstanding works can be listed.

The Art Institute of Chicago received as a gift from Charles Henry Worcester, early in the year, $1,000,000 worth of paintings and a few works in sculpture, a total of 70 items, many of which had been on view as long-time loans. Included are such masterpieces as Gentile Bellini's "Two Orientals," Cranach's "Crucifixion," and Caravaggio's "Chastisement of Love." Besides early Italians, Dutch, and Germans, the group comprises Flemish, early, 19th century, and contemporary French, 18th century British, modern Spanish, and Americans.

The Los Angeles County Museum, by means of a cash gift of $250,000 from the Hearst Foundation, acquired 35 works of art ranging from Egypt's V Dynasty to the 18th century A.D., also eight contemporary American paintings.

The Toledo Museum purchased Lorenzo Monaco's "Madonna and Child" (about 1420) from the famous Cook Collection, England; El Greco's "Agony in the Garden"; and "The Family at Dinner" by Mathieu Le Nain, which was the focal point of a loan exhibition held at the Museum in October, of work by the three Le Nain brothers and their school.

The Detroit Institute of Arts purchased Sassetta's "Betrayal of Christ" (about 1440) and received as a gift from Mr. and Mrs. Edgar B. Whitcomb, Rogier van der Weyden's "St. Jerome in the Desert." The Institute also received as a gift Jordaens' "Holy Family with St. Anne"; bought a large sketch in oils, by Rubens, of Cardinal Archduke Ferdinand; and purchased for its American collections, Whistler's "Falling Rocket," the painting made famous by his libel suit against Ruskin, in which he won a farthing damages. The Institute paid $12,000 for it, many times the sum (200 guineas) that incensed Ruskin in 1875.

The William Rockhill Nelson Gallery, Kansas City acquired Carpaccio's "Portrait of a Lady," considered his best, by Venturi.

The M. H. De Young Memorial Museum, San Francisco, acquired El Greco's "St. John the Baptist."

The Cleveland Museum purchased a major work by Rubens, one of his seven portraits of his first wife, Isabella Brandt; also acquired Tiepolo's "Martyrdom of St. Sebastian" (about 1759); and a portrait of Don Juan Maria Osorio-Alvarez, known as "The Boy with a Linnet" by Goya, its placement in the Museum being its first showing in the United States.

The Metropolitan Museum of Art, New York City, acquired Poussin's "Rape of the Sabines" (about 1636) a very important addition.

The Boston Museum of Fine Arts acquired Poussin's "Achilles on Skyros."

The Albright Art Gallery, Buffalo, acquired Gauguin's "Yellow Christ," which is regarded as having inaugurated the new movement following Impressionism; it was looted by the Nazis and was one of the first paintings recovered and offered for sale in the United States.

The Museum of Modern Art, New York City, received its most important bequest in recent years of 20th century paintings, including "Conquest of the Air," considered Roger de la Fresnaye's masterpiece, and works by Juan Gris, from Mrs. P. A. T. Levene.

In addition to their acquisition of old masters, 18th and 19th century paintings, many American museums give incalculable aid and encouragement to contemporary American painting by their regular programs of purchase, often from their own annual exhibitions, from dealers' galleries, other exhibitions, and the artists themselves. These are, happily, too numerous to name.

EXHIBITIONS

Thousands of exhibitions of painting are held each year. Besides many large annuals and one-man shows which provide opportunities for living artists, there were, during 1947, superb old master and modern shows (in some instances representing months of careful preparation and cooperation between galleries), some to afford exhaustive studies of schools or individuals, others to celebrate anniversaries, to exhibit a city's resources, to commemorate artists recently deceased, to mark artists' centenaries, to introduce artists from abroad, or to benefit some worthy cause.

OLD MASTER EXHIBITIONS

The City Art Museum of St. Louis celebrated in October its 40th anniversary with an exhibition comprising 40 masterpieces, valued at $3,000,000, borrowed from practically all the important museums in the United States, as well as from Canada's National Gallery. It covered five centuries of western art from eight countries, ranging from 14th century Florentine to Winslow Homer.

Wildenstein & Company, New York City, showed in February 1947, the largest number of paintings by Italian Renaissance masters seen in New York since the World's Fairs. Nearly 50 masters were represented, all from the stock of the 81-year-old firm; they covered two centuries, beginning with 1350, in various schools.

Holland's greatest painters of the 17th century, Hals and Rembrandt, were celebrated in a great exhibition at Los Angeles County Museum in December 1947. Twenty-one paintings by Hals, 32 paintings, 54 etchings, and a few drawings by Rembrandt, emphasized the marked contrast between the two masters who were of the same race, lived at the same time, and had the same subject matter; yet Hals' paintings depict happy extroverts, Rembrandt's, brooding introverts. More than 3,000 people attended the opening.

French still life paintings constituted an important exhibition at Seligmann and Helft Galleries, New

York City, in November. It included 13 works by Chardin, as well as good representation of Cezanne, Courbet, Pissarro, Renoir, Manet, Desportes, and others. The Quaker Emergency Service was beneficiary of the admission charge.

Brooklyn Museum held a semicentenary exhibition early in the year, displaying samples of its treasures: early American paintings, Egyptian sculpture, drawings, prints, and decorative arts.

19TH CENTURY AMERICANS

A large number of exhibitions of 19th century painting reviewed the art, chiefly of Americans. The Detroit Institute of Arts and the Boston Museum of Fine Arts were co-sponsors for the first extensive exhibition of paintings by Washington Allston, early 19th century romantic, shown anywhere since 1881. Opening in Detroit in May, it was shown two months in each city.

William Sidney Mount, outstanding 19th century genre painter, and his brothers Henry S. and Shepherd Alonzo Mount, were commemorated in a large exhibition at the Suffolk Museum, Stony Brook, L. I. during the summer. It comprised 134 oils, more than 50 watercolors, drawings, sketches and prints, plus miscellaneous objects connected with them.

The Grand Central Art Galleries, New York City, celebrated their 25th anniversary in December (1947) with an exhibition of paintings by George Inness from the Watson Collection. The annual drawing of 100 lay members' names was held, each of whom received a painting or sculpture valued at $500 to $2,500. In the quarter century since he started the Grand Central Galleries, director Erwin S. Barrie had sold about $7,000,000 worth of American art (more than $1,000,000 worth by the late Frederick Waugh, marine painter).

An exhibition of oils, pastels, watercolors and drawings by James McNeill Whistler at the Macbeth Gallery in April, was the first showing of his work in New York City since the Metropolitan Museum's show in 1910.

A major loan exhibition of paintings and drawings by Winslow Homer, borrowed from some 25 museums and private collectors, opened at the Wildenstein Galleries in February for the benefit of New York Botanical Garden. It represented Homer's work from 1860-1909.

The Whitney Museum of American Art, New York City, commemorated two important centenaries during the year: Ralph Blakelock in May and Albert P. Ryder, in November. That of Blakelock was co-sponsored by City College (his alma mater) which was simultaneously marking its own centenary.

Mary Cassatt, most famous American woman painter and the only American closely associated with the Impressionists, was honored by the largest and most comprehensive exhibition of her work ever seen in New York. It was held in November (21 years after her death) at Wildenstein Galleries, for the benefit of Goddard Neighborhood Center, and comprised 84 paintings, pastels, and prints.

19TH CENTURY FRENCH AND OTHERS

The Cleveland Museum of Art worked for six months assembling an exhibition of work by Edgar Degas, hailed as "the most important in that institution's history," which opened in February 1947. Inspired by Cleveland's acquisition in 1946 of Degas' "Frieze of Dancers," the show comprised loans from all parts of the country, including 87 paintings, drawings, and sculptures.

A loan exhibition of 88 oils and watercolors by Cezanne, 20 of them not seen previously, said to be perhaps the largest display of his work yet held in New York City, was held at Wildenstein Galleries in April, for the benefit of the New York Infirmary. It comprehended Cezanne's work from 1863 to 1906.

Adolphe Monticelli was the 19th century artist featured to celebrate the 106th birthday, in March 1947, of

Robert C. Vose Galleries, Boston, and the 50th anniversary of Vose (the 3rd generation) as an art dealer. The exhibition, comprising 32 paintings lent by museums and private collectors, was the best show of Monticelli's work in many years.

20TH CENTURY AMERICANS

George Bellows, the most famous painter born in Columbus, O., was commemorated by the opening, Oct. 14 (22 years after his death) of a "Bellows Room" in the Columbus Gallery of Fine Arts, containing seven of his paintings, the largest number of his works in any museum collection.

Charles W. Hawthorne, best known for his Provincetown fisher-folk, was commemorated 17 years after his death, with a memorial exhibition of paintings at Grand Central Galleries in November.

John Steuart Curry, who died in 1946, was given a retrospective memorial exhibition at Associated American Artists, New York City, in March and April; the show covered two decades of his painting.

Alexander James, noted Boston painter, son of William and nephew of Henry James, who died in 1946, was given a memorial exhibition of more than 70 of his paintings at Currier Gallery, Manchester, N. H. during the summer, at the Boston Museum of Fine Arts in autumn, and at the Corcoran Gallery of Art, Washington, D. C. in December.

Ladislaus Moholy-Nagy, Hungarian-born artist and one-time professor at the famous Bauhaus in Weimar, with tremendous influence on modern design, who died in 1946, was commemorated with an exhibition of his paintings and works in other media at the Museum of Non-Objective Art, New York City, in June.

John Marin had a large retrospective exhibition, the first in 10 years, at the Institute of Modern Art, Boston, in January and February 1947, and later came to the Phillips Memorial Gallery, Washington, D. C. At the former, it drew an attendance of 200 daily, which is large for Boston.

20TH CENTURY FRENCH AND OTHERS

"Painting in France (1939-46)" filled all the exhibition space at the Whitney Museum of American Art, New York City, in February, with 117 paintings by 67 young French artists. Critics found it too imitative of modern movements from the Fauves on.

Pablo Picasso was thoroughly reviewed during the year in three exhibitions in New York City: in January and February, his work between the two World Wars, at the Paul Rosenberg Galleries; and his latest paintings at the Kootz Gallery; and in November, paintings of his "Blue" and "Pink" periods (before 1906) at the Knoedler Galleries, which broke all its previous attendance records, as during the first three weeks, 20,000 people paid admissions for the benefit of the Public Education Association.

"Contemporary British Painters" opened at the Albright Art Gallery, Buffalo, early in the year, whence it traveled to many other museums throughout the country.

THEME SHOWS

Size was the theme of an exhibition of 21 large scale modern paintings at the Museum of Modern Art, New York City, in April; some measured up to 13 x 16 feet.

"Masterpieces of Philadelphia Private Collections," shown during the summer at the Philadelphia Museum of Art, brought together for the first time, 204 oils, watercolors, and prints, from 23 local private collections. It was a comprehensive survey of the leading art movements from 1800 to 1946.

"Abstract and Surrealist American Art," at the Art Institute of Chicago in November, replaced its annual All-American exhibition of more than 50 years; it was announced as "the inauguration of a series of theme-exhibitions." Institute staff members had traveled some 24,000 miles to select the 256 exhibits. Sixteen prizes and mentions totaled $5,300.

AMERICAN GROUP SHOWS

The National Academy, New York City, held its 121st Annual in two parts. Part I, paintings, sculpture, watercolors, and prints, invited work of non-members, shown in January 1947, was a generous gesture, including bestowal of all the regular prizes but criticized as having too many items seen elsewhere previously. Part II held in April, comprised work by members with eight prizes contributed by the Academy, awarded in different mediums.

The Pennsylvania Academy of the Fine Arts 142nd annual in February, turned sharply to the left, emphasizing "the how" instead of "the what" in painting. Heavily weighted with abstractions, it was one of the poorest shows in years.

The American Watercolor Society's annual, at the National Academy in February, filled 10 galleries with 356 paintings, excellent in technique and craftsmanship.

The Corcoran Gallery of Art, Washington, D. C., opened its 18th Biennial exhibition of contemporary American oil paintings (300 works) the end of March 1947. Clark and Corcoran awards went to: 1st, $2,000 and gold medal, Sigmund Menkes; 2nd, $1,500 and silver medal, Walter Stuempfig; 3rd, $1,000 and bronze medal, Jack Levine; 4th, Clark prize and honorable mention to Hobson Pittman. Three other mentions were given.

The Brooklyn Museum's 14th International Watercolor Biennial in May had foreign representation for the first time since the war. The British section of work by 29 artists was outstanding. The American section represented 78 artists, the Italian 16, and there was a group from France.

The National Association of Women Artists' 55th annual in May at the National Academy, New York, was particularly good, being composed (apparently) of works especially created for it rather than by items sent in by dealer-representatives.

The venerable St. Botolph Club of Boston inaugurated in May, a national American Water Color Exhibition. The first edition was a brilliant affair, including 200 paintings, ranging from academic to abstract, hung in three parts: at the Club, the Vose, and Doll & Richards Galleries, each section centered around a prize-winner.

Artists of Chicago and vicinity, in their 51st annual at the Art Institute during the summer, replaced familiar conservatives and radicals with young abstract and semi-abstract artists' works. Fifteen prizes awarded totaled more than $2,600.

Los Angeles County Museum's 8th annual in May of work by artists of Los Angeles and vicinity, had repercussions. Critics panned it for being too small (50 paintings, seven sculptures) and too narrow. A rejected painter picketed the Museum, charging Red propaganda. Subsequently, 20 paintings by other rejectees were set up on the Museum's front steps, and one of these artists spoke against "degenerate, un-American work" to a crowd which kept five policemen on hand. Other forms of agitation were practiced. Furthermore, a used-car dealer sponsored a three-day show of "sane American art" in the Hollywood Athletic Club gymnasium, at which silver cups were awarded.

At Springfield, Ill., the first Old Northwest Territory Exhibition opened Aug. 7, to be an annual event for Ohio, Michigan, Wisconsin, Indiana, and Illinois artists. From 600 submissions, the jury chose 133 works, including 57 oil and 26 watercolor paintings. Dean Ellis of Cleveland, winner of the first prize of $1,000 and Maxwell Gorden of New York the second of $500, led 14 recipients of $2,900 in cash prizes.

The Carnegie Institute's annual in Pittsburgh in October, continued to be an all-American show. Invited by Homer Saint-Gaudens, it comprised 300 paintings by mature, established artists, ranging from extreme left to right. Prize winners were Zoltan Sepeshy, $1,500; Joseph Hirsch, $1,-

000; Eric Isenburger, $700. The general public remained faithful to clean-cut realism, and awarded the Popular Prize of $200 to Charles Gilbert for "Tree Portrait."

The Whitney Museum's annual of contemporary painting, New York City, which opened in December 1947, was dominated by abstract art. It included nearly 30 artists who had been represented in its first annual, 1932, also 28 showing there for the first time.

The Audubon Artists' 6th annual, New York City, in December, was smaller than in 1946, higher in quality, and presented under one roof. It comprised 495 works, nearer conservative than experimental; 229 oil paintings and 140 watercolors, the remainder sculpture and graphic arts. Gold Medals of Honor went to Nicholas Ziroli, William Palmer, Armin Landeck, and Lu Duble for the respective mediums.

The Metropolitan Museum, New York, set a fine example of an established, rich institution lending its works to less favored places. It made loans generously, throughout 1947, to institutions and organizations both in the United States and Europe. For example, "30 Masterpieces" of painting from Italian Renaissance and early northern works, including a Rembrandt, up to Rosa Bonheur's "Horse Fair" were shown at the Dallas Museum as a feature of the Texas State Fair in October and November.

PROFESSIONAL AND MUSEUM COOPERATION

Artists Equity Association was formed early in the year, and held its initial meeting April 30 at the Museum of Modern Art, New York. Hudson D. Walker was appointed executive director, to carry out a program for the economic and legal welfare of the artist, eschewing political, esthetic, or cultural matters. Headquarters was established at 400 Madison Avenue, New York City, and membership is open to any artist of professional status, defined as one having had a one-man show, representation in a museum, etc. Shortly after its formation, it had a membership of 150 leading painters and sculptors.

In September, the Metropolitan, Whitney, and Modern Art museums, New York, made an agreement of cooperation and coordinated activities, to avoid duplication of effort; the Whitney to concentrate on American art; the Museum of Modern Art, American and foreign art in modern idioms; the Metropolitan, older classic art. The initial transaction involved the sum of $191,000 to be paid in four installments by the Metropolitan to the Modern, for works considered to have stood the test of time: paintings by Cezanne, Picasso, and other late 19th and early 20th century works.

VARIA

Andrew Wyeth was the youngest artist ever to be awarded the American Academy of Arts & Letters Medal of Merit and $1,000 cash prize, given to him at joint ceremonies on May 22, of the Academy and the National Institute of Arts and Letters. The award is bestowed upon a painter only once in five years.

The American Academy in Rome awarded 4 fellowships, the first given since 1940 and each worth about $3,000. Two for painters, which began Oct. 1, went to William Thon and Charles Owen.

The Veterans Administration reported that, of 1,825,000 veterans enrolled in educational institutions under the G.I. Bill, more than 51,000 were taking courses in art and architecture. An additional 8,500 veterans were studying art in colleges.

Progress was made in telecasting art during the year. Art programs in black and white over television were effective, and experiments in color telecasts went forward. Hans van Weeren-Griek of Netherlands Information Bureau presented two experimental 15-minute programs over WPTZ, Philadelphia, so successfully that the time was extended to half an hour, and the series to two months. "You Are an Artist," featuring Jon Gnagy, a painter and teacher, oldest existing program of the kind on NBC television network, was a year old during 1947 and had a sponsor, Gulf Oil Refining Company. "On Exhibit" and "Living Art," telecast from museums over CBS, are seen occasionally.

Springfield (Mass.) Art Museum finally unveiled, Oct. 5, the mural painting in its library, which had had its inception at the beginning of the war, with a national competition, the cost to be financed by the Van Norman Machine Tool Company. In 1943, Pvt. Sante Graziani A.U.S. received the commission; he is now an instructor at Yale School of Fine Arts. The mural symbolizes the building of the museum, its connection with the arts and its community.

AUCTION RECORDS

Auction sales at the Parke-Bernet Galleries, New York City, topped the $6,000,000 mark for the 4th consecutive season (1946-47). The total of $6,019,153 was fetched by 98 sales at 195 sessions. There were few outstanding individual collections; sales comprised groups of properties. Jewelry, furniture, and rare porcelains obtained higher prices than collections of paintings. The season's sensation was "The Bay Psalm Book," the first book printed in North America; it went for $151,000 the highest price ever paid for a printed book. Mme. Vigee-Lebrun's self-portrait with her daughter, fetched $21,000, the highest price for a painting during the season. Other top prices for paintings were: Watteau's "La Danse Paysanne," $14,000; Sorolla's "Playa de Valencia," $13,500 (a record for him); Hans Burgkmair the Elder's portrait of an architect, $13,000. Only eight sales were entirely of paintings, but a total of more than 2,300 representing all schools were sold during the season.

The Gustave Dore collection, discovered in May in the Manhattan Storage Warehouse, New York City, after having been "lost" for half a century, was the center of a peculiar auction sale (or sales) held Sept. 9, and later, in a corner of the warehouse, for the payment of a 20-year storage bill. The collection comprised nearly all the oils painted by Dore, as well as drawings and prints; in the 1890s it was insured for $1,000,000 and was exhibited to 6,000,000 people. The paintings were large, measured by feet, and fetched bids of only a few hundred dollars. An offer of $100,000 had been refused for one of them half a century ago.

On Sept. 9, the collection was auctioned off, lot by lot, to a number of buyers, for a total of $10,828. Before they could take possession, it was immediately resold in its entirety for $12,500 in response to the bid of John M. Holtzworth. The following day, he was in jail for passing bad checks to a total of less than $100. The collection remained in the warehouse, Holtzworth was held by the F.B.I., and one bidder implemented a writ of replevin for several paintings he had bid in.

The collection was auctioned for the third time at the same place, on Oct. 28, fetched $12,917.50. The highest price was $2,100 paid for "The Triumph of Christianity Over Paganism," often regarded as Dore's greatest painting.

SCULPTURE

By Rose V. S. Berry
Art Critic and Writer

GENERAL

Sculpture, as a fine art, has a history peculiar to itself. It is much less a hybrid statement than the opera. Nevertheless, to separate it from painting, drama, and architecture, the time came when there was a parting of the ways. Strangely enough, the separation was brought about by Ghiberti's bronze doors of the Florentine Baptistry, whose unapproachable beauty has held them in first place for five centuries. While American sculpture was not born of Ghiberti's triumph, nor of the trend established by Donatello, they established standards of taste that have influenced all modern sculpture.

For the sake of a sequence and a brief retrospective glance at American Sculpture, the student should recall the work of the American men who took their training in Florence and Rome, and later that larger group who trained and profited by the verve and freshness of the Parisian art schools. In the meantime, America was freeing itself from its puritanical attitude toward sculpture, and accepting, often with a grudge, the truly artistic or creative approach to the art.

LOOKING BACK A CENTURY

With 1947 in mind, the writer turned back one century to see what the American sculptor was doing. In 1847, he had cast his first bronze equestrian statue. In the intervening century America has produced more equestrian statues than any other country. Its civic and monumental groups hold their own with most modern work. When American sculptors began to exhibit at the Venitian Biennials, the European critics were the first to declare that the Americans had a spirit of vigor, honesty, and characterization that set them apart in the realm of sculpture.

In 1929, when Mr. and Mrs. Archer M. Huntington financed the big sculpture exhibit in San Francisco, it was the foreign critics who turned the attention of the art world to the exhibit by the Golden Gate, and it was the Americans, who, accustomed year after year to the best that the National Sculpture Society put on in New York, heralded abroad that something startling was being shown in San Francisco.

Consider what happened in New York when the question under discussion was what bronze statues should be melted down if the metal were needed for the war. The result was something every sculptor and sculpture-lover should heed. From the hundreds of statues in the city, ten were selected for analysis, to be judged by a fearless committee of six. Only three: George Washington and Horace Greeley, by J. Q. A. Ward, and Nathan Hale, by Frederick MacMonies, received unanimous approval. Benjamin Franklin, by E. Plassman, received five favorable votes; General Sherman, by Augustus Saint Gaudens, received four votes. Father Duffy, by Charles Keck, received one and one-half votes, the half vote coming from a committee-man who changed his mind. Theodore Roosevelt, by James E. Fraser, received one vote. "Atlas," by Lee Lawrie, and the Battleship Maine Monument, by A. Piccirilli, were unanimously turned down.

This backward glance has come about by the statement often repeated in the art news of the press "that 1947 has been a favorable year for the sculptors," and that sends one with a thrill to review the record.

WHITNEY SCULPTURE EXHIBIT

The Whitney Sculpture Exhibit was the outstanding event for sculptors. Seventeen of the exhibitors are showing for the first time, and the 76 sculptures offer much of interest. To mention only a few one must include: Gordon Cutler's "Dragon," carved from diorite; Richard Barthe's reverential figure of "Mary"; José de Creeft's imposing "Shulamite"; Harvey Fite's "Play," figures of a child and mother; George Aaron's "Jeremiah, Pour Forth Thy Wrath"; Barlach's "Avenging Angel"; Alfeo Faggi's "From the Cross"; Robert Laurent's "Melisande"; "Rhythm," by Gwen Lux; Mitzi Solomon's "Lovers," which roused approval strong enough to overcome opposition; Koren der Harootian's "Leda and the Swan."

Though the list is by no means exhausted, it must end with the charming portrait of "Linda Wu," by Oronzio Maldarelli. The animal subjects are fewer than usual, but some of them are excellent. It should be noted here that the Whitney Museum has always had a generous sponsorship and a fearless Director, even in the face of local conservatism. After years of uncertainty and worldwide confusion the collection is more in tune with the moment than any other which the Metropolitan Museum has had to accept.

NATIONAL ASSOCIATION OF WOMEN ARTISTS

The 55th Annual Exhibition of the National Association of Women Artists made a new name for itself and took on importance because of the character of its exhibition. One reviewer of the collection thought that some degree of freshness and verve came from the fact that the exhibitors had worked largely in their own studios. One element had never entered this annual before—the sculptors came dangerously near stealing the show. Among the outstanding items were: "Evacuee," by Gwen Lux; "Mother and Child," by Arline Wingate; while notoriety centered upon "Lovers," by Mitzi Solomon; an impressive piece was the "Elephant Head," done in black Belgian marble, by Grace Trumbull.

OTHER EXHIBITIONS

The Toledo Museum put on the first pretentious exhibition in ten years, the collection is divided between 50 European and American sculptors. The items include variety in mediums: lead, aluminum, glass, and plastic, in addition to the traditional bronze, stone, and marble. Sculptors included are Calder, Callery, de Creeft, De Rivera, Epstein, Flannagan, Gross, Laurens, Lachaise, Laurent, Maldarelli, Noguchi, Umlauf, and Zorach.

The Pen and Brush Club made its initial showing of what is to be an annual sculpture exhibition. Restricted to club members, the collection contained 50 pieces; 17 were heads; five were animals; 10 were nudes; five draped figures, mostly mothers and children. The Jury of Awards consisted of José de Creeft, Donald DeLue, and A. A. Weinman. First prize went to Marion Sanford's "Tiny," and second to Eleanor Mellon's "Wava May." Other outstanding pieces were Ruth Nickerson's "Black Narcissus," Katherine Lan's "Wild Rabbit," and Melvina Hoffman's "Three Heads."

JO DAVIDSON

Jo Davidson's position as a sort of Grand Old Man of American sculpture was made more evident by his first retrospective exhibition which covered at least a 40-year period of achievement. One visitor said: "You need not expect to find improvement in Jo Davidson's work because he started at the top." This exhibit occupied five large galleries. His installation was by no means the smallest factor in the show. Although there were five full-length figures, a single female torso, and many portrait heads or busts, mostly in bronze, Davidson avoided even the semblance of confusion by grouping kindred subjects—those related chronologically and those associated with some vastly important field.

Latin American leaders such as Ortiz, Medina, and Baldomir, which were done in 1941, were pedestaled in one corner. The FDR-group, including Wallace, Senator Norris with La Guardia, Bernard Baruch, and others were done between '32 and '42 with few exceptions.

Grouped together and inseparable in the minds of all were the outstanding military men of the First World War, including Marshals Joffre, French, and Foch, with Generals Pershing, Harbord, Diaz, and others. These are the exceptional pieces too, because Davidson found it necessary to do them from the chest up to reveal their military medals and epaulets.

OTHER ONE-MAN EXHIBITIONS

David Smith, whose work is invariably suggestive of a strange off-earthish life that is threatening, defiant, but interesting, even though it never lived, is in no sense of the gremlin-order. His medium—iron—marks him as a fearless artist.

Henry Schonbauer held his one-man show at the Binet Gallery. He works in glowing mahogany, gleaming lignum vitae, grained maple, and other woods with hearts that lend themselves to the development of human bodies out of the core. These creatures, born of Schonbauer's chisels, are so well thought out that they appear to have been discovered in the grip of mood or emotion.

Chaim Gross gave his exhibition variety and interest through medium, theme, and size. His 30 sculptures are the first he has shown in five years. Any observer, with an eye for sculpture and a memory that goes back five years, will see in the collection the element that makes the whole 1947 season one of the most outstanding since 1939, when the National Sculpture Society gave its membership that wonderful exhibition at the Palace of the Legion of Honor in San Francisco.

Arline Wingate, in a first exhibition in 10 years, showed exceedingly interesting portraits, most of which are of fellow artists. Among the most attractive is a simple presentation, delightfully executed, of Abraham Walkowits. That he is favored by portrait painters is proved by the fact that his likeness has been secured by 100 canvases and drawing sheets. Other portraits are Waldo Pierce, Rhys Caparn (Mrs. Johannes Steele), and Prince William of Sweden.

Cornelia Chapin, Lu Duble, and Marion Sanford put on a delightful exhibition at the Grand Central Galleries. The Mexican work by Miss Duble was executed under fellowships from the Guggenheim Foundation and the International Institute of Education. Miss Chapin's work included some fine animal studies that, throughout the art season, had been selected from other collections and exhibitions as outstanding. Miss Sanford's group of 16 sculptures was attractive for several reasons, one being that every one had been a prize winner in its own right.

Doris Caesar is showing a comprehensive collection of her work for the first time in seven years. The artist has made her exhibition chronological by carefully including at least one piece of work for each of the seven years. The balance of the collection is selected from the work of '46 and '47. Her achievement here is one of steady development, showing the growth of a sincere artist. Among the personal characteristics of her work one notes her treatment of hands as indices of character. Hands have long occupied the interest of artists. One of the most admired Renaissance paintings of the "Last Supper" is Leonardo's superb study of 12 pairs of hands.

Cleo Hartwig, in 1947, presented 22 items, including "Polar Bear," "Tropical Fish," "Little Bird," "Chrysalis," and "Cat." Some were carved in wood and stone, others in terra cotta, brass and plaster.

Peter Fingsten is one with whom American art lovers are not as familiar as they will be. He is 30 years old and is presenting what might be a 30th exhibition. He is one of the fortunate persons never to have wrestled with an apprenticeship or the difficulty of finding a place for his work. He has studied in Vienna, Paris, Milan, and Berlin. His first exhibition was given at the age of 16. At 18, he was teaching sculpture. At 22, he shared a gallery with Picasso. "Elegy," included in the present exhibition, is one of the most arresting sculptures seen in recent years.

Anita Weschler's 14 items of sculpture are covered by an over-all theme, "Human Events," which she has presented in antithetical pairs suggested by some of the Biblical wisdom of Ecclesiastes: "A Time To Be Born" and "A Time To Die"; "A Time To Embrace" and "A Time To Cast Away," etc.

Robert Laurent is well-known and yet his one-man show of 24 pieces reestablishes his preëminence and craftsmanship in various stones, alabaster, and woods. The most recent work reveals an increased simplification.

Charles Salerno's exhibition netted him 14 sales. He is largely self-taught, but has learned a great deal from John Flannagan.

Alexander Calder's mobiles and stabiles continue to fascinate visitors to the modern exhibitions even more than they baffle visitors and critics alike. Jean-Paul Sartre said in 1946: "A mobile does not suggest anything; it captures genuine living movements and shapes them. Mobiles have no meaning, make you think of nothing but themselves. Mobiles *are*, that is all; they are absolutes. There is more of the unpredictable about them than any other human creature. No human brain, not even their creator's, could possibly foresee all the complex combinations of which they are capable. Such hesitations, resumptions, gropings, the sudden decisions and, above all, their swan-like grace make of certain mobiles strange creatures indeed."

PORTRAITS IN SCULPTURE

In addition to the portraits listed among Davidson's 93 exhibits, and many others, the Clay Club Galleries in Greenwich Village exhibited some outstanding work, including Staik Young's portrait of Jane Wasey; a penetrating study of Arturo Toscanini, by Dario Viterbo; and Malvina Hoffman was at her best in her characterization of Wendell Willkie.

Richmond Barthé, the Negro sculptor, exhibited a series of portraits especially interesting to theatregoers, among them Maurice Evans as Richard II, Laurence Olivier as Hotspur, Katherine Cornell as Juliet, and Judith Anderson as Mary.

PURCHASES AND PLACEMENTS

Pennsylvania Academy of Fine Arts purchased a small Jennewein bronze for its collection. Chicago's 51st Annual Exhibition purchased "Lambs" to which it had awarded Sylvia Judson its first sculpture prize. Philadelphia artists bought Rosin's "Reclining Nude," and presented it to the Philadelphia Museum of Art.

An excellent bronze bust of the late Senator Borah was unveiled in a permanent setting in Washington, D. C. Although Bryant Baker, the sculptor, was present, no mention was made of his name.

In Fort Worth, Tex., an equestrian statue of the late Will Rogers was unveiled on his 68th birthday. General of the Army Dwight D. Eisenhower was guest of honor for the event. The statue was the pivotal point of the whole ceremony, but there was no mention that the sculptor was Electra Waggoner Biggs. The same thing happened to Augustus Saint-Gaudens in Chicago when his Lincoln was unveiled. A black granite head, a Zorach masterpiece, was placed in San Diego's Museum.

AWARDS AND SCHOLARSHIPS

Prix de Rome was given to Concetta Scaravaglione, the first woman to receive the enviable honor. Albert Wein received the second award.

Palm Beach Annual awarded its three prizes to Berta Margoulies for her "Bather"; to Margaret Abel for "Exorcism," and to William Zorach for his famous head of "Myra."

The Tiffany Foundation Scholarships for '47 for sculptors included Walter Addison, $2,000; Peter Fingsten, $1,000; Leonard Baskin, $1,000; and Ralph Menconi, $1,000.

Prize winners in the January National Academy Exhibition were Jean de Marco's "Christ and His Disciples," Peter Dalton's "Seated Figure," Harry Rosin's portrait of "Folinsbee," and Henry Kreis' ably executed "Young Girl."

Guggenheim Fellowships were awarded to Berta Margoulies and Ruth Nickerson.

The Pennsylvania Academy of Fine Arts had a fund of $13,000 in 1947 for cash awards; $6,000 was expended in purchasing prize-winning works for the Academy's permanent collection. The committee consisted of Bruce

Moore, chairman; Janet de Coux, and Robert Laurent.

INNOVATIONS IN SCULPTURAL ACTIVITIES

Up to 1947, exhibitions, commissions, casual placements, etc., have been entrusted to State Art Commissions, or to builders of civic and private interests. From now on, such assignments will be dispersed by able business men, those who are usually behind the scenes as Museum Boards, local, and State Art Commissions. The most interesting phase of this venture is that it will be carried out and delightfully achieved by far-reaching business concerns. For instance, *Encyclopaedia Britannica*, which has been an exclusive patron of painting, announced in 1947 that from now on it will sponsor sculpture as well.

Among large business corporations sponsoring sculpture from this time are the Tecla Pearl people and Pepsi-Cola. Procter and Gamble years ago led the way with Soap Sculpture Exhibitions, which left an entranced public. They made the undertaking extensive and official, by increasing the number of cash prizes; by adding children's, juvenile, and adult competitors. These classes were judged by different professional Jurors, but the final decisions were always in the hands of excellent sculptors.

With this 1947 exhibition—its third—the La Tausca Art Competition will have a five-member Jury of Awards. These men will be named by a previously appointed Invitation Jury of Artists and Museum Directors.

Other changes that 1947 brought to the American Sculptor are those that come *via* inexorable Time. Names of large numbers of young gifted artists have appeared and will continue to appear. This ten-year interim before and since the War will do for present sculpture organizations what the Whitney Museum did for older men—now prominent.

Another change always comes when death steps into the artist's fold. In 1947, four notable men were taken: Hermon A. MacNeil, Edward MacCartan, Elie Nadelman, and Joe Mora, of Monterey, California.

Hermon A. MacNeil, aged 81, has done prominent work for all recent American, national, and international exhibitions. His "Who's Who in American Art," carried by the *Art Annual,* is too much to include here, though he deserves that his passing should be observed by its publication. His work had rare excellence. His subjects were presented with sympathetic understanding. His recognition was very general. His prizes and awards from everywhere.

In the passing of Edward MacCartan, an artist has been lost who has stood to the fore for many years. His work included a variety of subject matter, which he presented in exquisite detail and winning, graceful poses. A modest man, himself, MacCartan's place was among meticulous craftsmen, whose skill freed his every artistic utterance.

Elie Nadelman's death later in the year took a talent that was unique among American sculptors. When he returned from Paris, his Boulevard-Restaurant groups, done in the open, attracted wide attention. Seated about thin metal-legged tables, the caricatured public laughed and gossiped. Opposed to this very original and rather prolific output, Nadelman confined his work to large pre-Phidian heads done in pure white marble. In content, they are as remote from today as any archaic Greek statue. In Nadelman's modesty, however, he would probably insist that his greatest contribution to New York City consisted of the 15,000 items he and his wife donated to the Worker's Museum.

Joe Mora, the California sculptor, was a great loss to the West. He was among the last of the famous Spanish families. Though he was versatile in every phase of coastal life, he was possibly rarest and best in his knowledge and love of Spanish Colonial history. Having spent nearly all his life about Monterey, one of the oldest coast towns, Mora knew the people.

Padres and priests were his friends; every member of the parish was a neighbor. The Indians and the half-breeds were friends of Mora and the flocks. In bas-reliefs and statues their likenesses left his studio, as sincere, dignified statements of a time long past.

One of the most outstanding commissions of the Panama Pacific International Exposition was deputized to Joe Mora. He worked a pageant of the Portala into a glamorous, romantic, retrospective re-enactment, unlike anything ever seen. It was a panorama. Every object, item, and living being in the moving mass had been painstakingly sculptured by Mora. Then they were installed, and Mora proceeded to color them and to utilize Ryan's amazing lighting system, which was made absolutely fairy-like by its controlled indirectness, capable of the most delicate change.

By using the Ryan lighting system it was always some time of the day, very much like the out-of-doors, with a difference: the mechanics could stop the passing of the sun, hold the majesty of dawn, and hasten the noon-glare. In all this glory of color, the Spanish grandees and soldiers, brilliantly caparisoned horses, finely bred dogs, and curs that follow such a motley mass, literally lived as they advanced, in this California pageant that took place 200 years ago. Then one night fire broke out and rapidly burned that part of the temporary pavilion. Not one precious sculptured object was saved. Joe Mora's vision of California's grand Spanish epoch was in ashes.

ARCHITECTURE

By Frank G. Lopez
Technical Editor, *Progressive Architecture*

GENERAL

An expected number of difficulties beset the practice of architecture during 1947. Most architectural offices were extremely busy, since there had by no means been sufficient time since the cessation of hostilities in the Second World War for catching up with the tremendous backlog of work that had been built up during those years when no normal building could be done. But there was a shortage of draftsmen and other competent professional help; manufacturers of many kinds of building materials were having production difficulties; costs of construction went sky-high and gave no promise of receding; building labor of some types was scarce, and what there was produced less than formerly; and all these factors, added up, often led to the practice of preparing complete plans and specifications for buildings only to shelve them without starting construction, to await a time when difficulties would be fewer.

Nevertheless a great many buildings were built. Esthetically—if the cultural and the practical can be separated in architecture—there began to be visible a greater degree of public interest in what is called "modern" architecture, even in the conservative residential field. Of course, there were many times as many houses of traditional styles, particularly among those built for speculative sale. There was also much innovation in construction materials and technics, a natural consequence of difficulties with familiar materials and the high cost of labor.

BUILDING MATERIALS

By October, production of building materials of all types had reached a level 56 per cent higher than the monthly average in the year 1939, according to Department of Commerce indices. Some materials were available in totally unprecedented quantities—gypsum board shipments were over 500 per cent of the average in 1939; warm air furnaces, 266 per cent, for instance—and only a few items of basic materials or equipment lagged behind 1939 production—mechanical stokers, for example, had reached only 97 per cent of pre-war production.

THE PROBLEM OF WOOD

But if we were producing at that rate by October, we had not been in all the months since the end of the war, and the accumulated backlog of demand was still far from satisfied. In the matter of quality, a few types of products were almost uniformly unsatisfactory. An example was wood, in nearly all the forms in which it is used in construction. Most wood available during the year was improperly seasoned, or of poorer grades than architects normally wish to employ, and so costly that, in some regions at least, wood began to give way to other materials. An architect in Hanover, N. H. found it cheaper and more sound structurally to use lightweight steel members for the framing of houses, and relied upon wood only for less important uses. This was true in spite of lumber production which approached the wartime high of 36,000,000,000 board feet in 1942, according to estimates of the National Lumber Manufacturer's Association. By the time the building contractor in Hanover had figured in the cost of transporting structural lumber from Washington and Oregon, the high cost at the mill, and the cost of difficulties of using the quality of material available, steel framing, though not intrinsically cheap, proved less expensive.

PRODUCTION LAG IN BASIC MATERIALS

Materials which were slow throughout the year in building up production percentages to pre-war levels included hardwood flooring, brick, cast iron products (radiators, bathtubs, etc.), and sheet steel products. Judged by total pre-war consumption there was no shortage of sheet and strip steel, but there was considerable competition for the available tonnage between building product manufacturers, equipment manufacturers, and such other producers as the automobile industry, which was itself experiencing a tremendous demand. Further, the lag in production of some of these basic materials accentuated the demand for others to be used in their place. Also, the trend toward such building practices as "dry-wall" construction (in which interior and exterior wall surfaces are formed as much as possible of materials applied in large sheets, eliminating the delays caused by waiting for moisture to dry out of other types of construction) increased the demand for sheet products like asbestos-cement board, gypsum board, and plywood.

NEW TYPES OF BUILDING PRODUCTS

New types of building products which became more widely used during the year include mechanical cores, or units in which are combined, at the factory, all kitchen and laundry equipment, bathroom fittings, and a complete heating system; these are intended chiefly for mass housing developments. There was also more extended use of Vermiculite, an aggregate for concrete and plaster, formed of expanded mica, and contributing to the final material considerable thermal insulation, acoustical absorptive properties, and substantial weight reduction. Multi-layer insulating glazing—glass with dehydrated air-spaces between layers—came into wider use, mainly in houses. A device for insertion in air-conditioning systems, for cleaning the air by means of static electricity, had achieved some popularity in industrial and commercial structures; models were developed and marketed by several companies for residential use. There were many others, too many for listing in such a brief review; it is doubtful if ever in the history of the

American building industry have there been so many new products introduced in such a short space of time.

CONSTRUCTION COSTS

Early in the year construction costs caused the postponement of many building operations, in all types of construction—industrial, commercial, institutional as well as residential. In the industrial field, for example, only in those cases when not to build would have been more expensive than to build whatever the cost, did construction proceed. And as likely as not, costs would zoom upward while construction was in progress. Wise builders accepted contracts only on a cost-plus basis, and the owner usually found, before the building operation was concluded, that his structure was costing him anywhere from 10 to 50 per cent more than had been estimated. This could not be blamed on any segment of the industry in particular; it was spread over all, and reflected the boom economy prevalent.

By the end of the year, according to United Industrial Associates, Inc., of Washington, D. C., who base their figures on Department of Commerce and Bureau of Labor Statistics data, the price tag on the average American house had jumped from $4,599 in 1939 to $10,648, more than double. Los Angeles, they state, was the most inflated market; there prices almost tripled in the same period; New York, Chicago, and Boston were likewise the centers of high-priced areas, while in such areas as Kansas City, St. Louis, and Philadelphia prices had risen from approximately $3,000 to about $7,000.

LABOR COSTS

Construction wages followed the general trend higher, and construction labor costs rose even more because labor produced less than formerly. In many cases, this was not due to any uncooperative attitude, but rather to such troubles as lack of experienced mechanics, delays in delivery of materials, age of workmen, etc. In some quarters, there was determined effort to get apprentice-training programs under way. Notable was the case of the bricklayers; in this trade nearly 8,200 veterans and other young men were registered in the apprentice brick mason program, in 329 localities, according to the Structural Clay Products Institute. The program was operating in 43 states, yet at the end of the year one of the country's important industrial construction firms was conducting considerable research, at great expenditure of time and money, to find a substitute for brick as an industrial wall material because, even with all materials at hand, their masons were so elderly they could not handle brick speedily, and because their masons were being offered, by competing firms, wages substantially higher than they could afford.

QUALITY OF DESIGN

The trend away from traditional and eclectic architecture began to be manifest in many parts of the country, for many types of buildings. The rationality of the new approach to architectural design had not previously been unacceptable in such buildings as commercial office structures, factories, and research buildings; but there were fewer examples of houses, institutional buildings, and public buildings in the modern idiom. Where it had been accepted it had demonstrated its efficiency and its—usually—lower cost. Mounting construction costs may account for its greater acceptance during 1947, though that is also undoubtedly due in part to the large number of younger, more energetic individuals who have established themselves in practice since the war, and who are unwilling to design in the traditional manner. Another factor, more specialized yet quite significant in its effect, was the action of the Veterans' Administration in awarding design contracts for its new hospitals to many excellent architects, all of whom preferred the fresh approach to the traditional.

Whatever the reason, good contemporary design was to be found in every state; "modern" architects were practicing in Maine, in New Hampshire, in Vermont, in up-state New York, in Minnesota, South Dakota, Kansas, Virginia, Louisiana, Tennessee, Massachusetts, California, Oregon, Texas, and many other localities—often in smaller communities as well as in the larger metropolitan centers. The architects concerned were uniformly serious, technically competent, and often brilliant.

The annual Awards for excellence in design given by the magazine, *Progressive Architecture,* reflect this trend. Given in March for work built during 1946, the first awards for non-residential work went to the New Hampshire firm of E. H. and M. K. Hunter—young and just established—for their roadside showroom and restaurant for the Dewey woolen mills, in Queechee, Vt.; also to Ernest J. Kump of California for a school in San Carlos. Kump has been longer established, but his work has a similar character. In the residential class, houses by Gordon Drake and Kenneth Lind, both of Los Angeles, won awards; both these men are new to the field, and both the houses were "modern."

REPRESENTATIVE WORK OF THE YEAR

Work published during the year in the architectural press generally was of a similar nature. Completed works include various civic and county buildings as well as several houses, all in Klamath Falls, Ore., by Sheldon Brumbaugh; the Wayne County Health Center in Michigan, by Eberle Smith; Saarinen and Swanson's Opera Shed in the Berkshire Hills in Massachusetts, one of the finest structures acoustically and architecturally that was ever dedicated to music; the luxurious Tennis Club at Palm Springs, Calif., by Paul Williams and Quincy Jones; the Keeley Institute Dormitory at Dwight, Illinois, by Schweikher and Elting; the Blood Bank Building in Seattle, by Naramore, Bain, Brady, and Johanson; a wooden-arched factory for Mercury Aircraft at Hammondsport, N. Y., by Ervay Baker; another factory for the H. K. Porter Co., Somerville, Mass., Walter F. Bogner, Archt.; and numerous stores by the firm of Ketchum, Giná, and Sharp. Projected work, not yet executed, but published, showed even further development; there were a Jewish temple and school for Cleveland and a synagogue to be built near St. Louis, Mo., designed by Eric Mendelsohn; the tremendous North Shore Shopping Center for Beverly, Mass., which was expected to alter the shopping habits of a good proportion of metropolitan Boston's population, by Ketchum, Giná, and Sharp and several consultants; and office buildings of aluminum and glass in Philadelphia; by Friedman, Alschuler, and Sincere, and in Portland, Ore., by Pietro Belluschi. The Tishman Building on Park Avenue in New York City, by Kahn and Jacobs, attracted much attention because its exterior walls were somewhat cantilevered from columns set well inside the building's face. Frank Lloyd Wright's design for the Museum of Non-Objective Art, based on a logarithmic spiral larger at the top than at the bottom, was projected for the same city.

OUTSTANDING HOUSES

Houses which attracted interest during the year included: two by Gordon Drake, in Los Angeles; the radiant-heated Davies house near Chicago, by George Fred Keck; Edwin G. Johnson's house for himself in Cambridge, Mass.; houses designed around the peacetime version of the Quonset hut, in California, by John Campbell and Worley K. Wong; the Powell house, Forestville, Va., Charles M. Goodman, Archt.; a house in Minneapolis by Elizabeth and Winston Close; others in Princeton, N. J., by Kenneth Kassler, in Lincoln, Mass., by Carl Koch, and cottages in West Dennis, Mass., by David Fried; and the large, expensive, argument-provoking Geller house on Long Island by Marcel Breuer.

STUYVESANT TOWN IN NEW YORK

New York had two of the most provocative developments. One was Stuyvesant Town, the huge (75 acre) housing redevelopment undertaken by the Metropolitan Life Insurance Co., for which Gilmore D. Clark was Chairman of the Board of Design. Housing professionals almost to a man deplored the great density of population, the lack of schools, stores, and other amenities; architects were apathetic toward it. It was certainly the largest flowering of New York State's redevelopment law.

PROPOSED UN BUILDINGS

The other was the proposed buildings for the United Nations. John D. Rockefeller donated to the United Nations the site, several blocks in the slum areas of east-side New York which had been assembled by one of the country's largest real estate operators. Though there had been much agitation in the architectural press, here and in Europe, for an architectural competition to produce the best design for a world capital of which the world's architects were capable, Wallace K. Harrison of New York, who had been identified with some of the earlier negotiations, was selected as Director of Planning. Harrison is well known for his work in the design of Rockefeller Center in New York. He assembled a group of architects from other countries, including Le Corbusier from France, Oscar Niemeyer from Brazil, Howard Robertson from Great Britain, and several others, to work out preliminary schemes. These were widely published in the daily papers and news magazines in this country, less fully in the architectural magazines; it is too early to assess public reaction to the designs.

REPLANNING OF DOWNTOWN PITTSBURGH

In the field of city planning, the most noteworthy development was the comprehensive scheme for replanning and gradual rebuilding of downtown Pittsburgh, for which Mitchell and Ritchey of that city were the architects. Unlike many such schemes, this seemed to have a good chance for ultimate success since it was backed by reputable local citizens, organizations, and the city government, all of whom realized that Pittsburgh could not have a very rosy future if it should continue as an incipient industrial slum overlaid with smog.

THE THEATRE

By Edwin T. Duffy
News Department, *The New York Times*

INTERNATIONAL ASPECT OF THE 1947 SEASON

The second post-war theatrical season in America's leading showcase was an exciting and, generally speaking, rewarding one for followers of the spoken drama. The year was marked by an interchange of actors and plays between this country and Great Britain. America dispatched facsimilies of the long-running "Oklahoma!," as well as "Annie Get Your Gun," "Born Yesterday," and "Anna Lucasta." Britain, in turn, sent us a diverse set of actors and productions, some not up to the level of what we had come to expect, but all aiding in making New York's theatrical scene truly international in flavor.

The year 1947 saw the arrival of the Donald Wolfit Repertory Company for an engagement in New York. Braving this side of the Atlantic so hard on the heels of London's Old Vic Company proved disastrous, for too much was expected of them and too little was received. Wolfit was a competent actor and, in his production of "Volpone," proved to be a very good one. In the other offerings, "King Lear," "The Merchant of Venice," "As You Like It," and "Hamlet" he was not up to par, nor were the members of his supporting company. The group left town after three weeks' performances with a promise to come back in 1948. Also slated for appearances in the near future are the world-famous Abbey Theatre of Dublin (Sara Allgood, incidentally has consented to rejoin the ranks for the New York run) and Palestine's well-known Habimah Theatre, which is being brought over to this country by Theatre, Inc.

Completing the international aura for 1947 was the arrival of the celebrated D'Oyly Carte Opera Company of London which had not been seen on these shores since the dark days of 1939. The visitors were once again given a hearty welcome and their program of such Gilbert and Sullivan operetta favorites as "Patience," "The Mikado," "Iolanthe," and the rest was expected to keep them active well into 1948. For the records, their opening performance of "The Mikado" was the final spurt of theatrical production for 1947.

AMERICAN REPERTORY THEATRE

The year 1947 also saw what was claimed to be the temporary demise of the American Repertory Theatre, which had started operating only a year before. Shortly after the turn of the year, the organization ran into financial difficulties and decided to drop the repertory idea entirely in favor of regular-run revivals of "Yellow Jack," never a successful commercial play, and "Alice in Wonderland." The former lasted a little under three weeks, playing to sparse attendance at every performance, while the latter ran at a loss for a period of several months despite moderately good business. The upkeep for "Alice," coupled with theatre rentals and salaries for a large crew of stagehands, among other items, made it impossible for the production to operate in the black. The revival of "Yellow Jack" was staged by Martin Ritt and had a cast headed by Victor Jory and Raymond Greenleaf. Notices for the play were mixed and public attention waned. "Alice in Wonderland" was elaborately, albeit incoherently, revived with a former ballerina, Bambi Linn, in the starring role. Miss Linn, at least to this observer, seemed thoroughly unsuited for her assignment. As a matter of fact, the acting, in general, was so poor that even the grotesque overplaying Eva Le Gallienne and Margaret Webster, as the White and Red Chess Queens, proved something of a relief. Reports have been rife since the company's final offering that further productions are in the offing, and Miss Le Gallienne is said to be pondering the idea of reviving "Hedda Gabler" with herself in the title role.

OTHER REPERTORY OFFERINGS

Mid-summer marked another attempt at repertory in New York. A unit, known as The Company of Twelve, banded together to offer a season of revivals. Their initial, and final venture, was a mildewed production of the hardy perennial, "Rip Van Winkle." The press drew blood the following day and The Company of Twelve almost immediately closed up shop.

The City Center of Music and Drama promises to be the scene of some excitement in the repertory style early in 1948 when The New York City Theater Company begins what, according to reports, will be the first of its regular seasons of revivals. "Volpone," "Angel Street," and four one-act comedies by Chekhov have already been lined up, and the top players in the contingent, José Ferrer, Uta Hagen, Richard Whorf, and Le Roi Operti, are all uncommonly interesting performers. But the story of the new repertory group will be part of 1948's theatrical history.

END OF "LIFE WITH FATHER"

The only major milestone recorded in the year's theater scene was the interment of "Life with Father," which gave its final performance at the Alvin Theater one night last summer after having become the longest-running play in American theatrical history.

GIELGUD REVIVALS

The revival trend continued apace, although not at the break-neck speed that marked the 1946 season. John Gielgud and a cast of superior players, topped by Margaret Rutherford, Pamela Brown, and Jane Baxter, joined hands to give an engaging performance of the Oscar Wilde romp, "The Importance of Being Earnest," and, later in the year, Gielgud and fellow members staged a revival of Congreve's Restoration comedy, "Love for Love." Both were well-received by the press and public response was immediate. Gielgud next was concerned with the directorial chores of "Medea," Robinson Jeffers' freely adapted version of the Euripedes original. "Medea" was a happy occasion for it brought Judith Anderson back to her natural medium—the theater. As the stormy heroine of the classic Greek drama, Miss Anderson gave a performance that took the town by storm, and Gielgud as her erring husband and Florence Reed as her nurse gave commendable support.

Gielgud left the cast of "Medea" to take over the starring role in Rodney Ackland's adaptation of Dostoyevsky's "Crime and Punishment." The production was directed by Theodore Komisarjevsky, and once again Gielgud gave an outstanding performance. Also in "Crime and Punishment," Lillian Gish returned to the stage after a lengthy absence to remind older theatregoers that she remains one of the theatre's most gifted players. Supporting the star and Miss Gish were Vladimar Sokoloff and Dolly Haas, who made an appealing appearance in "Lute Song" a season or two back.

KATHARINE CORNELL

Katharine Cornell was responsible for the highly successful revival of the Shakespearean tragedy, "Antony and Cleopatra." The play has always been regarded as one of the Bard's masterpieces, but in its various productions in America, has always managed to come a-cropper. It took Miss Cornell to break the jinx, and she, along with Britain's Godfrey Tearle as Antony, provided theatregoers with one of the year's most brilliant evenings.

MAURICE EVANS

Maurice Evans, more usually concerned with Shakespeare, resorted to George Bernard Shaw's "Man and Superman" for his 1947 theatrical appearance. The transition from heavy drama to bantering comedy proved no obstacle for the versatile star, and, along with Frances Rowe, Jack Manning and Carmen Matthews, he placed the Shavian comedy high up on the list of the season's favorite attractions.

OPERETTA REVIVALS

Paul Stone, last represented by the 1946 revival of "The Red Mill," helped in presenting the 1915 operetta, "Sweethearts." The score by Victor Herbert did much to compensate for the shoddiness of the book revisions made by John Cecil Holm, which, in turn, were matched only by the shoddiness of the scenic production. The star of the occasion was Bobby Clark, but the venerable comedian found himself confronted with a tough situation, as did Marjorie Gateson, his leading lady. Nonetheless, "Sweethearts" found a public for itself and had achieved a full season's run before taking to the road.

The other operetta revival was Oscar Strauss' "The Chocolate Soldier," produced with little, if any, imagination by J. H. Del Bondio and Hans Bartsch. Although the music remained lovely as ever and benefited greatly by the presence of Frances McCann, a lovely new singer, luck was against the play from the start. Things were not aided materially by a comedian from the Hollywood hills, one Billy Gilbert, whose sole contribution to the evening's dubious hilarity was a succession of leers, grimaces, and preposterous sneezing fits. The production closed after only a moderate engagement.

OTHER REVIVALS

The year's remaining three revivals had all formerly served as vehicles for popular stars of a decade or two ago. The best of the lot was George Kelly's "Craig's Wife" with Judith Evelyn playing the role created by Crystal Hearne. It is always a pleasure to see an actress of Miss Evelyn's caliber at work on a stage and, if the revival, upon occasion, showed signs of age, it was no fault of hers. Philip Ober, Kathleen Comegys, Viola Roache, and Dortha Duckworth gave the star the very best in support, and Gant Gaither's physical production was most attractive to behold.

Jane Cowl came back to the theatre after an absence of several years to appear in "The First Mrs. Fraser," also produced by Gaither. The star role, played originally by Grace George, was interpreted by Miss Cowl with all the arch smiles, giggles, and raised eyebrows that have for so long been her trademark. Unfortunately, Miss Cowl's considerable list of mannerisms did little for the role and, what was worse, even less for the play. Henry Danniell, normally an excellent actor, was almost submerged in the thankless role of the dour husband.

The New Opera Company, heretofore associated solely with musical productions, finally came forth with its oft-postponed revival of "Topaze." Oscar Karlweis, the Continental comedian, was seen in the old Frank Morgan role, and Clarence Derwent was on hand to recreate his original role. The revival also served to introduce former dancer Tilly Losch to theater audiences. For all the good intentions that went into "Topaze," comparison with the 1930 production was inevitable, and the play closed immediately after its opening night.

DRAMAS

"The Druid Circle."—The year produced a small, but excellent, selection of dramas. Of the 14 set forth at various intervals, five were outstanding, and, of this number, four were commercially successful and were still running at the time this edition went to press. The exception was "The Druid Circle," John Van Druten's most interesting and intellectually stimulating play. "The Druid Circle" dealt with a hide-bound professor in a small Welsh town whose basic dislike for youth was unhappily reflected in his associations with the student body. The role of the professor was played, and brilliantly, by that able actor Leo G. Carroll and, as the old boy's crotchety mother, Ethel Griffies gave what amounted to the best supporting performance of the year. There also were fine pieces of acting from Boyd Crawford, Merle Maddern, and Neva Patterson, the latter being one of the most attractive newcomers in several seasons.

"All My Sons."—The year introduced a new and able playwright on the American theatre scene, Arthur Miller, who had been represented on Broadway only once before with a quick failure named "The Man Who Had All the Luck." Miller's second play, "All My Sons," was an outstanding production all along the line and was the recipient of the Critics' Prize for the best dramatic play of the year. The play, expertly directed by Elia Kazan, was also notable for its high quality of acting. Ed Begley, as a plane parts manufacturer who had knowingly shipped defective equipment overseas; Arthur Kennedy as his embittered son; Karl Malden, Lois Wheeler, and, in particular, Beth Merrill, in the difficult role of the tortured mother, gave performances the like of which are not often seen in our theatre.

"The Heiress," a play by Ruth and Augustus Goetz, and suggested by the Henry James novel, *Washington Square,* brought back to the stage the expert directorial abilities of Jed Harris and proved to be one of the most literate and exciting dramas of the year. It also was the occasion to renew acquaintance with the outstanding British actress, Wendy Hiller, not seen in this country since "Love on the Dole" in 1936. Miss Hiller gave an outstanding performance, and Basil Rathbone, Patricia Collinge, Betty Linley, and Peter Cookson were admirably adept in their roles.

"A Streetcar Named Desire."—Tennessee Williams, last represented locally by "The Glass Menagerie," was responsible for another glowing success, "A Streetcar Named Desire," which rapidly became the town's number one dramatic attraction. Elia Kazan directed this study of mental and moral disintegration in high order, and, in the central role, Jessica Tandy gave one of the top dramatic performances of the year. The supporting cast also was excellent and included such personalities as Marlon Brando, Karl Malden, Kim Hunter, and Nick Dennis.

"The Winslow Boy."—Terrence Rattigan's "The Winslow Boy," which had been a huge success in London, was imported for a New York run with its original cast and production intact. The play, based on an actual incident in British history, dealt with the fight of a father to have his son reinstated at a naval academy after the youth had been falsely discharged for theft. The drama, well-staged by Glen Byam Shaw, embraced the services of a good acting company, including Alan Webb, Frank Allenby, Michael Newell, and Valerie White.

"Command Decision."—The final drama of merit for the year was William Wister Haines' "Command Decision." While this war drama was thoroughly uneven in its writing, it avoided many of the pitfalls and cliches of the average play of this type. Paul Kelly, in the leading role, was excellent, and Jay Fassett gave an amusing performance as a brigadier general.

DRAMATIC FAILURES

With the good must come the bad, and some of the year's bad dramatic plays were really frightful. Hugh White's "Little A" was an old-hat drama of the "Hedda Gabler" school, and, in it, Otto Kruger and Jessie Royce Landis gave performances right out of "ten-twent-thirt" melodrama.

John Patrick, who had found an audience only a season or two back with "The Hasty Heart," came forth with "The Story of Mary Surratt," memorable only for the acting performance of Dorothy Gish, as the woman implicated in the assassination of President Lincoln.

Ronald Duncan's adaptation of Jean Cocteau's "The Eagle Has Two Heads" was preposterous make-believe, made even worse by the incredibly bad acting performances of Tallulah Bankhead, Clarence Derwent, and Helmut Dantine, a Hollywood screen figure.

Two good actresses, Miriam Hopkins and Mady Christians, were unwittingly caught up in James Parrish's "Message for Margaret," still another reworking of the eternal triangle theme. Elliot Nugent staged the offering, which drew a drubbing from the critics and withdrew after only five performances.

The remaining dramatic failures for the year were Jan de Hartog's "This Time Tomorrow," with John Archer and Ruth Ford; Dorothy Gardiner's romance of Emily Dickinson, "Eastward in Eden"; Robinson Jeffers' dramatic poem "Dear Judas" and Ferenc Molnar's "Miracle in the Mountains" which gave Julie Haydon and Victor Kilian work for only three performances.

COMEDIES

"John Loves Mary."—It was a bad year for comedy. Of the 15 specimens of that type to put in an appearance, only one was thoroughly acceptable. That was Norman Krasna's "John Loves Mary," basically a thin rewriting of the romantic complications school, but handled, at least, in a manner that was showmanly and professional. In it, Tom Ewell, who has been playing around these parts for a number of years, was acclaimed as the season's most promising new comedian. Also amusing in a uniformly good cast were William Prince as the John of the play's title, Harry Bannister, Loring Smith, and Lyle Bettger. The Mary of Nina Foch, however, was a disappointment.

"A Young Man's Fancy," an alleged comedy by Alfred Golden and Harry Thurschwell, drew a barrage of brickbats from the local play reviewers, but producer Henry Adrian's determination has kept this nonsense about life in a children's summer camp alive for far longer than it is worth. It still is continuing, though to negligible financial results.

"How I Wonder."—Donald Ogden Stewart, absent from Broadway for 15 years, returned from his arduous labor in the Hollywood vineyards, with what he chose to call a comedy. The vehicle, "How I Wonder" proved to be anything but a comedy as such weighty topics as the possibility of a third World War and the threat of atomic warfare served as typical examples of the conversation. Stewart, by attempting to cover a dozen themes at once, thus found himself in the embarrassing position of never having covered one thoroughly. Raymond Massey, considerably out of his depth, played a small-town college professor in a style more generally associated with Abe Lincoln. Carol Goodner, giving a good performance, as always, brought a certain amount of feeling to the badly written role of the professor's wife. The balance of the cast, and Everett Sloane, in particular, were entirely equal to the unhappy proceedings.

"Under the Counter."—Another comedy disappointment was the British-imported comedy "Under the Counter," which was used to reintroduce the dynamic English comedienne, Cicely Courtneidge. Miss Courtneidge, a hearty, amusing performer, worked like the proverbial Trojan to save a typical British music-hall offering, but even her vigor could not keep "Under the Counter" running for more than a few weeks.

"Open House."—Another delightful comedienne, Mary Boland, made a brief appearance in a rubbishy comedy called "Open House," naturally enough, dealing with the housing shortage. But the bricks in Miss Boland's house were made of straw, and the structure toppled within a week. Another effort dealing with the housing shortage, and even worse than "Open House" since it had no Mary Boland in its cast, was "Tenting Tonight," in which a harried cast did their best to overcome an impossible script. "Tenting Tonight," like the Arab, quickly folded its tent and silently crept away to Cain's.

OTHER COMEDIES

For the rest, British screen star James Mason made a fleeting appearance in Jacques Deval's "Bathsheba"; Howard Smith and Le Roi Operti worked hard to save a stagnant comedy known as "The Magic Touch"; Anthony Quinn, of the films, made a pleasing stage debut in Emmet Lavery's "The Gentleman from Athens"; Martha Scott was trapped for seven performances in "It Takes Two," still another piece of nausea dealing with the shortage in living quarters; Claire Trevor and Philip Dorn, two more refugees from the Hollywood studios, braved New York in "The Big Two" and went right back where they came from; Walter Abel and Edith Atwater had a fling at William McCleery's thin, but occasionally amusing, "Parlor Story"; Joseph Buloff, complete with accent, kept "The Whole World Over," a comedy dealing with the Soviet housing shortage for a blessed change, running for all of 100 performances; David Burns, remembered from "The Man Who Came to Dinner," appeared in a racetrack fable called "I Gotta Get Out" (it did) and the story of lady war correspondents was given a brief whirl in 1947's first offering, "Love Goes to Press."

One other comedy, not a failure but a moderate success, is worthy of mention. That was F. Hugh Herbert's "For Love or Money," singled out, not for any particular merit in the writing, but for the delightful stage debut of June Lockhart, daughter of that able acting team, Kathleen and Gene Lockhart. While critical response to the play was cool, gentlemen of the press unanimously hailed Miss Lockhart as the ingenue find of the year. Vicki Cummings and John Loder, in other stellar roles, were more than adequate, but it was agreed that it was Miss Lockhart that kept the play popular at the box-office.

FARCE FAILURES

For the records, two farces turned up during the year. The first, "Heads or Tails," was the handiwork of two literary gentlemen known as H. J. Lengsfelder and Ervin Drake, and was presented by an organization called Your Theatre, Inc., which gave the public the intriguing opportunity of being allowed to invest in theatrical production. It will be the work of some other worthy to determine the number of people who poured money into this losing venture. "Heads or Tails" closed rapidly and nothing has been heard since of the organization. The "angels," apparently, have learned their lesson.

The year's other farce was an item known as "Trial Honeymoon," and the "catch" title proved sufficient to keep the populace away from the box-office tills in droves. It lasted for eight consecutive performances.

MUSICAL DRAMAS—"STREET SCENE"

The year 1947 went down in theatrical records as the year in which the Broadway stage struck out for something new and exciting in musical entertainment.

The first major stride was taken with the production of Elmer Rice's prize-winning "Street Scene." Although labeled "a dramatic musical" by its producers, Dwight Deere Wiman and The Playwrights' Company, it actually adhered more to the standards of opera, since only a few pages of spoken dialogue were to be found in the script. Opera, dramatic musical or what-have-you, "Street Scene" was the year's finest offering in any field. The natural color and superb quality of the Rice text lent itself most adroitly to Kurt Weill's fine music and Langston Hughes' soaring lyrics. It was produced by people with a love for the theatre and was, in the opinion of many, the year's most important achievement. In it, Polyna Stoska, with a voice of genuine beauty, was introduced to theatregoers and, upon "Street Scene's" closing, she was immediately snared by the Metropolitan Opera Association. Miss Stoska sang the role of the errant wife, while Anne Jeffreys, with a fine and promising lyric soprano, appeared as her daughter. Norman Cordon, another good singer, was impressive as the father, and there were fine singing-acting contributions from Brian Sullivan, Hope Emerson, and Sydney Raynor. The music, combined with superior lighting and stage scenery, all joined together to present a thrilling tone poem of life in New York City.

"THE MEDIUM" AND "THE TELEPHONE"

The other big musical event for 1947 was the double-bill comprised of "The Medium" and "The Telephone." The productions contained book, lyrics, music, and direction by the gifted Gian-Carlo Menotti, who introduced a fresh talent to the Broadway musical stage. "The Medium" was a gripping chamber opera which told the story of a sham seeress who is actually visited by a supernatural force and whose reason becomes unbalanced. Spun out in two acts, "The Medium" presented Marie Powers in the title role, and she proved superb at both singing and acting. Miss Powers was superbly supported by Evelyn Keller as the medium's daughter and Leo Coleman as a mute servant. "The Telephone," a brief curtain-raiser, brought along Marilyn Cotlow, the possessor of a charming soprano in an amusing bit of whimsy dedicated to a young female's addiction to that instrument. Both chamber operas represented a fine blend of music, drama, and singing. Favorable press reception was almost unanimous, but, for a time, it looked as if the productions were doomed to failure. Several closing notices were posted but each time were abandoned when public interest strengthened. Both "The Medium" and "The Telephone" had chalked up a comfortable run of six months before taking to the road for an extensive tour.

MUSICALS, REVUES, OPERETTAS, VARIETY

"Brigadoon."—Even the more usual Broadway musical product took a turn for the better during the course of the year. "Brigadoon," a musical fantasy with an interesting book by Allan Jay Lerner and fine lyrics and music by Lerner and Frederick Loewe, was the best new musical of the year. Set in Scotland, "Brigadoon" was the story of a tiny enchanted village which came to life once every 100 years. Marion Bell, the singing heroine, was delightful and David Brooks excellent as the leading man. The production received the Critics' Prize as the best new musical of 1947 and is still continuing to capacity audiences.

"Finian's Rainbow."—A second musical fantasy to delight theatregoers was "Finian's Rainbow," a pleasant tale of an Irish immigrant and his daughter who come to America with a stolen pot of gold and run into a series of amusing mis-adventures in the mythical southern state of Missitucky. Embellished with a book by E. Y. Harburg and Fred Saidy and boasting lyrics by Harburg and music by Burton Lane, a first-rate cast, including Albert Sharpe and Ella Logan, soon placed "Finian's Rainbow" high up on the list of top musicals for the year.

"Allegro."—A new production from Richard Rodgers and Oscar Hammerstein II also marked the year's theatrical activities. "Allegro," which as usual had Agnes de Mille's choreographic imprint, proved something of a disappointment to the "Oklahoma!" and "Carousel" admirers. Tracing the history of an American doctor from the time of his birth to his death, "Allegro," in the opinion of this observer, took itself far too seriously a great deal of the time, and, while its principal players, including Annamary Dickey, John Conte, Muriel O'Malley, and John Battles, all worked well, the production was just not up to the high level of excellence expected from The Theatre Guild and the Messrs. Rodgers and Hammerstein. A high-pressure publicity campaign, in advance of the opening, convinced the play-going public that "Allegro" was something to see. It is still running and to the tune of almost $50,000 weekly.

"High Button Shoes."—The more ordinary style of Broadway musical was represented by "High Button Shoes." The production, good-natured and amusing, had Phil Silvers as its principal comedian, and let it be said that Silvers never once allowed the customers to take things seriously. Nanette Fabray made a bright appearance as the show's heroine, and Jerome Robbins submitted a hilarious "Mack Sennett Ballet," which became the highlight of the offering. "High Button Shoes" is still continuing to make friends at the box-office and a prosperous engagement is in sight.

"Barefoot Boy with Cheek."—The year's remaining musical comedy offerings, however, were nothing to get excited about. "Barefoot Boy with Cheek" was based on the book by Max Shulman and its stage version's sole claim to distinction of any kind was, probably, the most uninspired set of music and lyrics to appear in any musical for a number of years. Working against George Abbott's frenzied direction and a thoroughly unamusing script, even Nancy Walker found it impossible to be amusing. After putting up an impressive publicity front, "Barefoot Boy" called it quits, with the accompanying heavy financial loss.

"Angel in the Wings."—The year's only revue was "Angel in the Wings," which was used as an amusing vehicle for the talents of The Hartmans, an amusing new comedian, Hank Ladd, Elaine Stritch and Viola Roache. Successful revues have become increasingly difficult to find, so it was with no small amount of pleasure that the town's critics found the new one very much to their taste. Opening towards the end of 1947 and receiving generally good notices, "Angel in the Wings" seemed sure of running well on into 1948.

"Music in My Heart" was 1947's sole new operetta and, unfortunately, not much good. Based fleetingly on alleged incidents in the life of Tchaikovsky, the production proved popular at the box-office for a while, but, before the year was out, attendance had slumped, and a precautionary closing notice had gone up backstage. The cast included Robert Carroll, Martha Wright, and Vivienne Segal.

Chevalier and Piaf.—Other musical items for the year 1947 included special engagements of the French entertainers Maurice Chevalier and Edith Piaf, the former in a one-man show and the latter in a French variety program, in which the diminutive singer was supported by a hilarious group of singing comedians known as "Les Compagnons de la Chanson."

"The Cradle Will Rock."—Marc Blitzstein's play in music, "The Cradle Will Rock" was transplanted to Broadway's Mansfield Theatre after two successful evening performances at the City Center. A good deal of the sting of the labor operetta seemed to have been lost in the passage of time, and the latest production, which had cast members placed on the stage in three rows of chairs and stepping to the front of the platform to enact their parts, did not seem to be quite as intriguing as must have been originally thought. The Broadway production included Will Geer, Muriel Smith, Vivian Vance, and Alfred Drake.

MELODRAMAS

"An Inspector Calls."—The art of theatre melodrama remained almost entirely forgotten during 1947. J. B. Priestley, however, sent along an interesting, if quiet, study in suspense labeled "An Inspector Calls," which brought Thomas Mitchell back to Broadway. While this was not one of Priestley's best plays, it had its good moments and was particularly well-acted by Mitchell, Doris Lloyd, Renee Ray, Melville Cooper, and John Buckmaster.

"Portrait in Black" was an overwritten exercise in melodramatic mayhem crossed with violent sex angles. In it, Claire Luce, after a considerable London success, returned to America to give a curiously stilted performance as the play's unhappy heroine. She was supported in routine style by Sidney Blackmer and Donald Cook. The play managed a few months on the two-for-one ticket basis, but even this concession was unable to keep the show running.

OTHER ITEMS

Charles Laughton, lost to motion pictures for a number of years, consented to come back to town for a limited engagement in the Experimental Theatre's off-Broadway production of the Bertold Brecht play "Galileo," as translated into English by Laughton. The star was supported by John Carradine, Wesley Addey, and Joan McCracken. Other Experimental Theatre productions for 1947 included John Finch's "The Wanhope Building"; John Savacol and Glendon Swarthout's "O'Daniel"; Tillman Breiseth's "As We Forgive Our Debtors"; Arnold Sundgaard's "The Great Campaign"; and John D. and Harriet Weaver's "Virginia Reel."

Just to keep the year's theatrical records intact, mention should once again be made of the fact that Ruth Draper, under the sponsorship of John C. Wilson, took up her customary stand at the Empire Theatre in a limited engagement of her well-known monodramas. Miss Draper was once again hailed by the critics and at a $3.60 top for performances was assured of a profitable run of several weeks.

MOTION PICTURES

By Thomas M. Pryor
Motion Picture Department, *The New York Times*

GENERAL

The American motion picture industry would like very much to forget that a year such as 1947 ever existed, but the events of the last 12 months were too momentous, economically and politically, to be quickly forgotten; and, indeed, at least two of the developments will be discussed again when the books are closed on 1948. For the business of making motion pictures in 1947 is being conditioned to a large extent by the effects of the tax imposed last August by the British Government on earnings of imported films, and also, on the cultural level, by the hearings of the House Committee Investigating un-American Activities.

HIGH EARNINGS OF THE INDUSTRY

Although as 1947 got under way, box-office receipts were erratic when not showing definite signs of decline, there was a marked improvement in picture grosses from about June on, and the industry was thus able to chalk up another banner year. On the basis of Federal admission tax payments through October 1947, theatre box-office receipts for the year were estimated at more than $1,500,000,000, or roughly about only one per cent less than the all-time record income of $1,562,179,235 achieved in 1946.

Perhaps the most significant thing about the `phenomenal earnings is that the quality of pictures released in 1947 was decidedly mediocre. Indicative of the lack of creative ingenuity displayed on the screen was the return to shortened runs for pictures in theatres throughout the country. For example, Broadway first-run houses, which had become accustomed to extended runs, were frequently changing programs at intervals of two to three weeks. While the aggregate gross business for the nation's 16,000-plus movie houses would seem to dispel fears of an imminent recession, the fact remains that individual pictures did extremely poor business, thereby strengthening the impression that the public is shopping now more than ever and no longer is willing to pay a dollar or more for entertainment that is worth not more than 25 cents.

BRITISH TAX FACTOR

When it became apparent that there was no way of staying or compromising the 75 per cent tax levied by the British government on the earnings in England of imported pictures, particularly American films, since they constituted about 80 per cent of the movies shown on English theatre screens, the American industry immediately canceled further shipments of films to England. As the year ended negotiations were begun to settle this impasse, but prospects of an early solution faded after an initial burst of optimism, and Hollywood studios lost no time in preparing themselves to face the loss of an estimated annual net profit of $68,000,000 from the British market.

The tax measure, introduced to help Britain ease her desperate dollar shortage, was not popularly received by the English movie interests, especially theatre owners. No ill effects were felt during 1947, however, as there was a sufficient stockpile of new and tax exempt American films in the country when the regulation and the counter embargo were announced in August. However, that supply was not expected to last beyond March 1948, and, therefore, British theatre owners could not observe the dawn of a new year with customary enthusiasm. And, Hollywood's initial bullishness was diminished somewhat by hints from observers in England that steps might be taken to lift the exemption enjoyed by those films stored in London vaults before the deadline.

One immediate effect of the loss of this revenue on Hollywood was the cancellation of several projected high budget productions, and the redrawing of plans for additional pictures. Under this trimming of budgets, the $2,000,000 picture will be the exception rather than the rule through 1948, at least. For now Hollywood is operating on the sensible economic premise of earning a profit in the domestic market and writing off foreign revenues as pure gravy. Heretofore, producers often started pictures on budgets so high that they knew in advance that, unless the picture was another "Gone with the Wind," it would be lucky to pay back its dollar investment from showings in this country. That was the principal reason why the foreign market became so all important to the financial well-being of the American movie industry.

REPERCUSSION IN HOLLYWOOD

The panic which gripped Hollywood at the realization of the great loss in earnings from England, resulted in wholesale dismissals by the major studios of low salaried employees. The firings took place among workers in the home offices of the companies in New York and in exchange centers around the country as well. Some of the studio workers were given payless "vacations" of more than a month as the studios shutdown to realign production schedules. The economy wave did not have such serious consequences for the five and six figure earning group, including stars, featured players, writers, directors, and producers, because most of them had contracts. However, several found themselves at liberty upon expiration of their commitments, and every sign indicated that when new contracts were negotiated their earnings would be readjusted downward.

The morale of the industry's employees was, however, seriously affected by the inequity with which the economy program was administered. There were many instances where employees with service records of ten years or more, suddenly found themselves possessing pink dismissal slips. At least, one of the big companies, Metro-Goldwyn-Mayer, found itself in the contradictory and embarrassing position of having fired porters, charwomen, and messengers on grounds of economy and then having handed out bonuses running into thousands of dollars each in the case of its high salaried executives. Though no exact figures were available on the number of persons who lost jobs as a result of the economy, firings were known to be in excess of 1,000 employees.

CONGRESS COMMUNIST PROBE

In its time, the motion picture industry has been the target of many and diverse probes, official and otherwise, but it goes without saying almost that nothing ever frightened the industry as much as the Communist probe undertaken by the House Committee Investigating Un-American Activities. Not even the "war-mongering" Senate investigation of 1941 shook the leaders of the industry and created hysteria anywhere near as apparent as the hearings conducted in Washington by J. Parnell Thomas, Republican Representative from New Jersey and chairman of the House Committee.

Sensational charges that the screen was being abused as a medium for communist propaganda and that pictures were literally dripping with Red sentiment were alleged by Representative Thomas and others. However, at the time the hearings were adjourned late in the year not one shred of evidence had been introduced to substantiate the charge that Moscow was dictating the ideological content of American motion pictures.

The issue of Communist propaganda on the screen soon became sidetracked at the hearings, and Representative Thomas turned his guns, with generous help from some of the biggest stars, directors, and producers in Hollywood, upon exposing alleged communist party members and/or fellow travelers who held creative positions of responsibility in the industry. The Screen Writers Guild was recklessly branded as a Communist organization, but when the showdown came none of those who pointed the finger could produce clear cut evidence to substantiate their allegations.

Ten individuals who refused to answer "yes" or "no" to assertions of the Committee regarding alleged membership in the communist party on grounds that such questions were a violation of Constitutional guarantees, were, however, cited by Congress for contempt and summarily dismissed by their studios. Those charged with contempt were writers Dalton Trumbo, Ring Lardner, Jr., Lester Cole, John Howard Lawson, Albert Maltz, Alva Bessie, Samuel Ornitz, and Herman Biberman and producer Adrian Scott and Director Edward Dmytryk.

Alarmed by the public furor occasioned by the investigation, and prodded by banking interests quickly to undertake to reestablish public confidence in the motion picture industry as an untarnished and glittering example of American enterprise, the Motion Picture Association announced that the industry would not knowingly hire, or continue to keep in its employ, anyone who was a communist. And Congress was called upon to enact legislation to help all American industry "rid itself of subversive, disloyal elements."

The action of the MPA was unprecedented in American industrial fields. Though Eric Johnston, president of the MPA, sought to assure Hollywood's creative talent that the industry was not embarking on a witch-hunt, his assertion that the new policy was "not going to be swayed by hysteria or intimidation," did little to still fears. Rumors of a secret blacklist by studio executives immediately spread and reached such proportions that even the solid conservatives in Hollywood began to feel uneasy. All of this uncertainty, it is argued by the writers and directors, and even admitted by studio heads, can not fail to exert an adverse influence upon the content of screen plays. It is regarded as highly unlikely that writers will dare to tackle themes with social significance, for instance, during the year 1948.

MPA'S DECLARATION OF POLICY

Because of its importance at this time, and because it may be the forerunner of legislation affecting the individual's right to full employment because of political affiliation or belief, it might be well to put into this record the text of the Motion Picture Association's declaration of policy. The document, issued on Nov. 25, follows:

"Members of the Association of Motion Picture Producers (that's the Hollywood arm of the Motion Picture Association—ed. note) deplore the action of the ten Hollywood men who have been cited for contempt of the House of Representatives. We do not desire to prejudge their legal rights, but their actions have been a disservice to their employers and have impaired their usefulness to the industry.

"We will forthwith discharge or suspend without compensation those in our employ, and we will not reemploy any of the ten until such time as he is acquitted or has purged himself of contempt and declares under oath that he is not a Communist.

"On the broader issue of alleged subversive and disloyal elements in Hollywood, our members are likewise prepared to take positive action. We will not knowingly employ a Communist or a member of any party or group which advocates the overthrow of the Government of the United

States by force or by any illegal or unconstitutional methods.

"In pursuing this policy, we are not going to be swayed by hysteria or intimidation from any source. We are frank to recognize that such a policy involves dangers and risks. There is the danger of hurting innocent people. There is the risk of creating an atmosphere of fear. Creative work at its best can not be carried on in an atmosphere of fear. We will guard against this danger, this risk, this fear.

"To this end we will invite the Hollywood talent guilds to work with us to eliminate any subversives; to protect the innocent; and to safeguard free speech and a free screen wherever threatened.

"The absence of a national policy, established by Congress with respect to the employment of Communists in private industry, makes our task difficult. Ours is a nation of laws. We request Congress to enact legislation to assist American industry to rid itself of subversive, disloyal elements.

"Nothing subversive or un-American has appeared on the screen. Nor can any number of Hollywood investigations obscure the patriotic services of the 30,000 loyal Americans employed in Hollywood who have given our Government invaluable aid in war and peace."

The next rounds are due this year when the House Committee resumes its hearings in Washington; the ten cited for contempt come before the court, and the legal responsibility of the companies which dismissed the ten, notwithstanding contractual commitments, is tested in court actions.

LABOR RELATIONS

In the excitement over the investigation and the British tax, small attention was given the fact that the International Alliance of Theatrical Stage Employees emerged victorious, by default, in its long drawnout and bloody jurisdictional strife with the Conference of Studio Unions. As the year drew to an end, the once mighty CSU informally admitted defeat by permitting its members to cross picket lines without prejudice and seek employment in the studios. Labor observers, taking a long view of the IATSE's current position, believe that it is stronger now than ever and also has the producers, friendly disposed to the union during the conflict, at its complete mercy in the event of future labor-employer conflict. For now the studios have no rival union to turn to for aid in the event of trouble.

PICTURES WITH SOCIAL THEMES

Only three pictures of any great social consequence came out of Hollywood during the year. These were "Gentleman's Agreement," produced by Twentieth Century-Fox, and "Crossfire," produced by RKO Radio Pictures, both of which dealt frankly with anti-Semitism in the United States, and "The Fugitive," a strong declaration for religious tolerance, directed by John Ford and released for Argosy Pictures—the Ford-Meriam C. Cooper Company—by RKO. "Gentleman's Agreement," which received the New York Film Critics award as the best picture of 1947, was the more thoughtful treatment of anti-Semitism. The subject was used for more muscular melodramatic purpose in "Crossfire," which revolved around the killing of a Jew by a recently discharged American Army soldier.

FOREIGN FILMS

In selecting the best film of the year, the New York Critics had a difficult time, however, arriving at their decision, for it was not until the sixth ballot had been cast that "Gentleman's Agreement" won with nine votes to seven for the expertly made British picturization of Charles Dickens' "Great Expectations." The New York Critics gave their best foreign picture award to the Italian production "To Live in Peace." Another Italian film, "Shoe Shine" also figured in the voting as did two exceptionally interesting French films, "Children of Paradise" and "Panic."

AWARDS

The New York Film Critics gave their accolade for the best direction to Elia Kazan for "Gentleman's Agreement" and "Boomerang"; their best actor award to William Powell for "Life with Father" and "The Senator Was Indiscreet" and their best actress award to the British star, Deborah Kerr, for her English films "Black Narcissus" and "The Adventuress." The critics specifically did not consider her performance in her first Hollywood-made film, Metro-Goldwyn-Mayer's "The Hucksters," as worthy of special attention.

TEN BEST PICTURES

Bosley Crowther, motion picture critic for *The New York Times*, included three foreign pictures among his selections of the year's ten best, the aforementioned "Shoe Shine," "To Live in Peace," and "Great Expectations." His pick of the Hollywood crop follows: "The Yearling," Metro-Goldwyn-Mayer; "Miracle on 34th Street," Twentieth Century-Fox; "Crossfire," RKO Radio Pictures; "Life with Father," Warner Brothers; "Gentleman's Agreement," Twentieth Century-Fox; "The Bishop's Wife," Samuel Goldwyn, and "The Fugitive," Argosy-RKO Radio Pictures.

CHARLES CHAPLIN

The National Board of Review of Motion Pictures surprised professional movie observers by giving its best picture award to Charlie Chaplin's "Monsieur Verdoux," a picture which was lukewarmly received by the New York press and which was a dismal failure in its Broadway engagement. Although the film itself was considerably more interesting and refreshing than a lot of others which did very well indeed at the box-office, the allegations of Communism and Communist sympathy leveled at Chaplin by various groups and publications during the year undoubtedly hurt the film's earning power.

BING CROSBY

Bing Crosby, on the basis of a poll conducted among the managers and owners of the nation's 16,000 movie houses, came out for the fourth consecutive year as the top money-making star, according to the trade publication *The Motion Picture Herald*. The only other star ever to hold that honor was Shirley Temple, who held the box-office leadership from 1935 through 1938. Running behind Crosby, the other nine top money-making champions were, in the order listed, Betty Grable, Ingrid Bergman, Gary Cooper, Humphrey Bogart, Bob Hope, Clark Gable, Gregory Peck, Claudette Colbert, and Alan Ladd.

CENSORSHIP PROBLEMS

Censorship problems continued to bedevil the movie makers in 1947, and indications of public resentment over immorality and brutality on the screen led the Johnston office, as the Motion Picture Association is informally called, to revise the Production Code and the Advertising Code in such a way as to bar specifically the filming of gangster stories in which criminality is made to appear attractive. Immorality also got some added and specific "don't's" to those already in both codes, and it is the industry's fond expectation that this regard for propriety will lessen attacks from the Roman Catholic and other church and lay groups.

Twentieth Century-Fox found itself in hot water not only with the Catholic Church but with civic groups and even motion picture theatre owners as a result of "Forever Amber." The Legion of Decency condemned the film on behalf of the Roman Catholic Church; Cardinal Spellman warned the laity of the Archdioceses of New York that they could not attend the film with a clear conscience, and Archbishop Dougherty in Philadelphia forbade his flock to attend film showings for one year at the Fox Theatre there after the management refused to heed his request to cancel the run of the picture. Later, after the Fox company made changes in the picture and added a foreword emphasizing the adage about the wages of sin, the Legion gave the picture a "B or objectionable in part" classification. The Legion also condemned the British picture "Black Narcissus," dealing with the ill-fated mission of a group of Protestant nuns in India, on the grounds that it cast unwarranted reflections on the religious. This film also received a better rating and was, in fact, given a "Class Two A or morally unobjectionable for adults" status after the producers made some alterations.

NEWSREELS

There was nothing worthwhile in the newsreel field to merit reviewing, as the only change here was one of management when the Warner Brothers bought control of Pathe News. Similarly there was no appreciable activity in the 16mm field outside of normal operations. The only happening of note in this regard was the deal whereby Louis de Rochemont, founder of The March of Time editorial newsreel technique and who later introduced the documentary style of picture making to Hollywood *via* "House on Ninety-Second Street," "13 Rue Madeleine," and "Boomerang," established a company, with financing from United World, to produce a series of 16mm classroom motion pictures. Mr. de Rochemont has outlined plans for a series of 86 subjects, providing an integrated course in world geography, but the first of these pictures will not be ready before late 1948.

PERIODICAL PUBLICATIONS

American Cinematographer
1782 North Orange Drive, Hollywood, Calif.
American Home, The
444 Madison Ave., New York City.
American Journal of Archaeology
Archaeological Institute of America, Columbia University, New York City.
Antiques Magazine
40 East 49th Street, New York City.
Architectural Forum
350 Fifth Ave., New York City.
Architectural Record
119 W. 44th St., New York City.
Art Digest, Inc.
116 East 59th Street, New York City.
Art News
136 East 57th Street, New York City.
Billboard, The
1564 Broadway, New York City.
Design
243 N. High St., Columbus, O.
Etude
1712 Chestnut Street, Philadelphia.
House and Garden
420 Lexington Ave., New York City.
Modern Music
130 W. 56th Street, New York City.
Motion Picture Herald
Rockefeller Center, New York City.
Museum News
Smithsonian Institution, Washington, D. C.
Musical Courier
119 West 57th Street, New York City.
Musical Digest
119 West 57th Street, New York City.
Musician, The
139 E. 47th Street, New York City.
Octagon, The
New York Ave., Washington, D. C.
Parnassus
625 Madison Ave., New York City.
Theatre Arts Monthly
130 W. 56th St., New York City.
Variety
154 West 46th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

Academy of Motion Picture Arts and Sciences, Taft Bldg., Hollywood, Calif.

American Academy of Arts and Letters, 633 W. 155th St., New York City.

American Academy of Arts and Sciences, 28 Newbury St., Boston.

American Academy in Rome, 101 Park Ave., New York City.

American Ceramic Society, 2525 N. High St., Columbus, Ohio.

American Federation of Arts, The, Barr Bldg., Farragut Sq., Washington, D. C.

American Fine Arts Society, 215 W. 57th St., New York City.

American Institute of Architects, 115 E. 40th St., New York City.

American Numismatic Society, 156th St. and Broadway, New York City.

American Scenic and Historic Preservation Society, 287 Convent Ave., New York City.

Archaeological Institute of America, Columbia University, New York City.

Architectural League of New York, 115 E. 40th St., New York City.

Artists Guild, 551 Fifth Ave., New York City.

Fine Arts Federation of New York, 115 E. 40th St., New York City.

Graphic Arts Board of Trade, 136 Liberty St., New York City.

Hispanic Society of America, The, 155th St., West of Broadway, New York City.

Municipal Art Society of New York, 119 E. 19th St., New York City.

National Academy of Design, 1083 Fifth Ave., New York City.

National Alliance of Art & Industry, 119 E. 19th St., New York City.

National Assn. of Women Artists, 42 W. 57th St., New York City.

National Institute of Arts and Letters, 633 W. 155th St., New York City.

National Sculpture Society, 115 E. 40th St., New York City.

New York Society of Architects, 101 Park Ave., New York City.

Society for American Archaeology, Illinois State Museum, Springfield, Ill.

Society of Illustrators, Inc., 128 E. 63rd St., New York City.

DRAMA

Actors Equity Assn., 45 W. 47th St., New York City.

Actors Fund of America, 1619 Broadway, New York City.

Dramatists' Guild, 6 East 39th St., New York City.

English Folk Dance and Song Society of America, 15 E. 40th St., New York City.

Episcopal Actors Guild, 1 E. 29th St., New York City.

Independent Theatre Owners Assn., Hotel Astor, New York City.

International Alliance of Theatrical Stage Employees and Moving Picture Machine Operators of the United States and Canada, 630 Fifth Ave., New York City.

International Theatrical Play Bureau, RCA Bldg., New York City.

League of New York Theatres, 234 W. 44th St., New York City.

Motion Picture Producers and Distributors of America, Inc., 28 W. 44th St., New York City.

Motion Picture Producers Assn., Hollywood, Calif.

Motion Picture Theatre Owners of America, 1600 Broadway, New York City.

Museum of the City of New York, Theatre Div., Fifth Ave. and 104th St., New York City.

New York Public Library, Theatre Div., Fifth Ave. and 42nd St., New York City.

Screen Actors Guild, 7046 Hollywood Boulevard, Hollywood, Calif.

Theatre Authority, Inc., 545 Fifth Ave., New York City.

Theatre Guild, Inc., 245 W. 52nd St., New York City.

MUSIC

American Federation of Musicians, 570 Lexington Ave., New York City.

American Guild of Musical Artists, Inc., 2 W. 45th St., New York City.

American Guild of Organists, 630 Fifth Ave., New York City.

American Society of Composers, Authors, and Publishers, 30 Rockefeller Plaza, New York City.

Cantors' Registry, 36 E. 7th Street, New York City.

Grand Opera Guild, 250 W. 57th St., New York City.

National Bureau for the Advancement of Music, Inc., 315 Fourth Ave., New York City.

National Music League, 130 W. 56th St., New York City.

Oratorio Society of New York, 113 W. 57th St., New York City.

Philharmonic Symphony Society of New York, 113 W. 57th St., New York City.

DIVISION XXVII

EDUCATION

ELEMENTARY EDUCATION*

By W. Leslie Garnett
Professor, Kent State University
and
Ralph D. Purdy
Superintendent of Schools, Conneaut, O.

INTRODUCTION

The 1947 review of elementary education in the United States has been made from source materials. During the fall of 1947, a questionnaire was sent to all state superintendents of instruction requesting information pertinent to such a report as would be expected on the subject of elementary education. A gratifying response came almost immediately from about 50 per cent of the states. The material gathered from half the states was, in truth, so voluminous that the authors decided to report in 1947 on those making the early returns. The other states may be reported upon in 1948. The states, then, about which this review has been made are: Alabama, Arizona, Arkansas, Colorado, Connecticut, Delaware, Florida, Illinois, Indiana, Kansas, Louisiana, Massachusetts, Minnesota, Missouri, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Pennsylvania, South Carolina, Vermont, Virginia, Wisconsin, Wyoming.

The authors were given access to the "Annual Report for the Fiscal Year 1946, Division of Elementary Education," as presented to the U. S. Office of Education by Dr. Bess Goodykoontz, director of the Division of Elementary Education. The 1947 report, then, falls into three sections.

SECTION ONE—REPORT ON ELEMENTARY EDUCATION FROM THE U. S. OFFICE OF EDUCATION

Excerpts have been taken from reports prepared by the Division of Elementary Education, as high-light summaries of the work under way at the Federal level:

> "The Division of Elementary Education is designed to serve in four major areas: Organization and supervision; instructional services; exceptional children and youth; teacher education . . . the Division's staff members have been concerned with both urban and rural schools; with children who are normal in their development and those who are exceptional in their rates of learning or handicapped by physical, mental, or emotional difficulties; with children varying widely in age, from the 2- or 3-year-old in nursery school or kindergarten to the 12- or 14-year-old who is ready for high school; and with parents, whose cooperation is increasingly recognized as essential to the best growth of their children in school. The magnitude of the problems involved is apparent when one considers that there are some 20,-

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* The authors of this report acknowledge their indebtedness to Dr. Bess Goodykoontz, Director, Division of Elementary Education, U. S. Office of Education, and to the 25 State Directors of Education cooperating in 1947 for the facts presented in Sections One and Two of this report.

000,000 children in the elementary schools of the United States, each of whom must be treated as an individual and given an opportunity to grow in terms of his abilities."

The nice emphasis placed upon individualization is the key-note to the philosophy of education upheld in the field of elementary education by the Federal Office. Such a note is of primal significance for education in a democracy. Within the framework of this philosophy the Constitutional right of the American to be given an "opportunity to grow in terms of his abilities" can be realized.

The members of the Division of Elementary Education include a chief of the section on school organization, a specialist in nursery-kindergarten-primary education, a specialist for upper-grade education, a specialist on extended school services, a specialist on the education of exceptional children and one on the education of the physically handicapped; two specialists for science, two in health and physical education, a specialist in social studies, a specialist in rural education, and a research assistant. These specialists are available for consultation services in the states. Consultative services in states and communities have been as extensive as funds would allow.

> "The specialist in *nursery-kindergarten-primary education* consulted with State educational leaders in Maryland, New Jersey, Arkansas, North Carolina, Ohio, and Illinois on State plans for the extension of schools for children under six and on legislative matters relating to this problem. The specialist for *upper grades* was a consultant in conferences on curriculum and on supervision sponsored by State education departments in North Carolina and Virginia, and participated as discussion leader, resource person, speaker at conferences sponsored by educational institutions, and conducted workshops in Michigan, Georgia, Pennsylvania, Illinois, New Jersey, Nebraska, Tennessee, and Maryland. Requests for services of these types on all grade levels are constantly increasing and are an indication of the importance attached to the early years of a child's education.
>
> "The specialist for *science* visited State education departments in Florida and New Jersey, to assist in laying plans for the improvement of instruction and curriculum making in elementary school science. He also participated in workshops for elementary teachers in Kentucky and Michigan and held conferences with administrators and teachers in local school systems and with educational associations in Maryland, Kentucky, North Carolina, Colorado, California, Washington, and other States. . . . *Extended school services* were born just before and during the war, when the need of before- and after-school guidance for children of employed mothers became a matter of major importance. The program has proved its worth to such an extent that, when the end of the war came and Federal funds for this purpose were withdrawn, approximately three-fourths of the States continued their services in one form or another. Six States employed staff to supervise the programs; 4 States made appropriations to finance child care centers: and legislation was passed in a number of States authorizing local boards of education to establish kindergartens, nursery schools, and school-age centers, in some cases permission being given to use public school funds for this purpose. Workshops on extended school services, with sections on parent education, were held in Maryland, New York, Illinois, Oklahoma, Virginia, and New Jersey. The shortage of trained personnel is an ever present problem, especially as colleges and universities are organizing new services for the children of veterans in attendance upon college courses.
>
> "*Services for exceptional children and youth* have demanded unprece-

dented attention since the conclusion of World War II. Never before has there been such obvious and widespread interest in the establishment of adequate facilities for handicapped children on a Statewide basis as well as in local school systems. The specialist in this field, who serves on both elementary and secondary levels, considered legislative and organizational problems with some of the interested lay groups and with official educational agencies in New Jersey, New York, Kansas, California, Minnesota, Illinois, Vermont, Pennsylvania and North Carolina. Increasingly emphasis is being placed upon the fact that the education of exceptional children cannot be limited to any one level of the school system. It must begin early and go with the child through his adolescent years until he has achieved optimum adjustment educationally, socially, and vocationally."

The foregoing phase of the report has been given in some detail in order that those who read may seek guidance from the U. S. Office of Education in working on problems similar to those cited. It is the very wise policy of the United States office to come when called, to come when the local community seeks guidance from those who have, by reason of position, the national picture in mind. Several important conferences were held by the Division.

"A highlight of the year was the Leadership Conference in June, to which representatives of 17 national organizations met with the staff of the Elementary Education Division. The conference brought leaders in various aspects of education which have some relation to children in the elementary school, so that they might plan together for better things for those children. The list of organizations included both subject-matter groups and general education groups which have active programs in elementary education. A report of the conference was issued.

"Two meetings of the Association of State Directors of Elementary Education were held—one in Chicago, the other in Washington. At the latter basic principles of elementary school supervision were enunciated and reports of committee groups were reviewed. This Association carries on a continuing program, and it is one of the vital forces for the improvement of elementary education in the States. Six committees of the organization are now at work, studying the following problems: (1) the characteristics of a good elementary school with regard to staff, grades included, size, program, organization, and criteria for evaluation; (2) the coordination of school and community services for a 12-month developmental program for elementary school children; (3) programs for children below six years of age; (4) techniques for the stimulation of curriculum development throughout a State, with fruitful participation by teachers, parents, other lay groups, and resource persons; (5) programs for the continuous professional education of teachers; (6) school housing and facilities for a desirable educational program."

The Division has worked on several projects with staff members of other Federal agencies and cooperated with voluntary professional and public service agencies. Of great significance today is the service given by the Division on international problems.

"At the request of the Division of International Educational Relations, representatives of embassies and legations, UNRRA, and the State Department, the Division has cooperated in helping to meet the varied problems of persons from abroad who have come in increasing numbers either to study intensively in the United States or to familiarize themselves with the general nature of our educational system. . . .

"Some of the countries involved

in such relationships have given the staff many enjoyable and instructive hours, as well as a liberal course in geography: India, Poland, Czechoslovakia, Sweden, Turkey, England, Norway, China, Siam, Ethiopia, Japan, Korea, Uruguay, Chile, Peru, Algeria, Argentine, Austrialia, Belgium, Canada, Egypt, France, Germany, Holland, New Zealand, Palestine, Union of South Africa, Cuba, Greece, Italy, and Bolivia."

Dr. Bess Goodykoontz was sent to Germany to assist in the post-war planning for education there; Dr. Helen K. Mackintosh was sent to Austria to give similar service there. The U. S. Office of Education worked on these projects at the request of the Department of State and the War Department. Bulletins put out by the Division during the past year include: "Schools for Children Under Six"; "Camping and Outdoor Education in the School Program"; "Schools Count in Country Life"; "Science in the Elementary School"; and "Health Education in the Elementary School."

To supplement the publication program and to provide brief compact summaries of information on topics related to elementary education, particularly those which are subjects of frequent inquiry through correspondence, and to provide reading lists on specific topics, two series of mimeographed circulars were initiated in 1947, called, respectively, *Education Briefs* and *Selected References*. They include the following issues, already published:

EDUCATION BRIEFS

No. 1. Materials and Apparatus for Teaching Elementary Science

No. 2. Using Pictures at School

No. 3. Registration of Nursery Schools, Kindergartens, and Child-Care Centers by State Education Departments

No. 4. Changing Practices with Time Allotments

No. 5. Some types of Classroom Organization

No. 6. Health Plays in the Elementary School

No. 7. Good Posture for Boys and Girls

No. 8. Types of Experiences Children Should Have

No. 9. Periodic Reports of Children's Progress

No. 10. Workshop Techniques in Elementary Education

SELECTED REFERENCES

No. 1. The Primary Unit—An Aid to Children's Progress

No. 2. U. S. Office of Education Publications Related to Elementary Education

No. 3. Professional Literature for Teachers of Elementary Science

No. 4. Physical Education in the Elementary School

No. 5. Education of Exceptional Children and Youth. Comprises nine sections dealing with types of exceptional children as follows: (1) General References; (2) Mentally Deficient; (3) Mentally Gifted; (4) Socially Maladjusted; (5) Visually Handicapped; (6) Deaf and Hard of Hearing; (7) Crippled; (8) Speech Defective; and (9) Delicate.

No. 6. Nursery Schools and Kindergartens—The First Years in Elementary Education

No. 7. Recent Publications in Elementary School Health

No. 8. Health Songs for Primary Grades

No. 9. Sources of Materials on Child Development and Parent Education

No. 10. Child Growth and Development

No. 11. Low Cost Publications on Safety

No. 12. Reports of Pupil Progress for Parents

No. 13. Arithmetic in Elementary Education

The report, as given by the Office for the fiscal year 1945-46, is concluded with the listing of some major problems of elementary education, which are still pertinent, such as:

1. How can the elementary schools help prevent juvenile delinquency?

2. How can the elementary school promote good health in the American citizenry?

3. Closely associated with the behavior problem, too, is the matter of health and nutritional status. . . . With regard to teachers, we face one of the most critical situations ever encountered. Its increasing seriousness is evident from the fact that the number of emergency permits granted for teaching increased from 79,000 in 1945 to 108,000 in 1946. About three-fourths of these were in the elementary schools, where pupil progress and development are to so large an extent dependent upon the guidance of adequately prepared teachers. The recruitment of elementary school teachers and well-balanced teacher education program that places emphasis upon functional values rather than upon the acquisition of subject matter alone are matters of first importance. . . .

Closely related to this situation is the inadequacy of educational opportunity for children of migrants and for children in many rural and isolated areas. This is where the most crucial shortages of teachers occur, and where it is most difficult to plan and achieve vitally functioning educational programs. There is a trend toward fewer and larger farms and a consequent diffusion of the rural school population.

4. Shall the School year be twelve months?

5. What is an ideal community school?

The last two sentences of the report should be given publicity the country over in order that public interest be aroused to support a Division of the Federal government designed to give the important service being offered now by the United States Office of Education. The statements are:

"IT IS EVIDENT THAT THE PRESENT PERSONNEL OF THE DIVISION OF ELEMENTARY EDUCATION, AS LISTED EARLY IN THIS REPORT, IS QUITE UNABLE TO RENDER ALL THE SERVICE NEEDED. ITS EXPANSION IS A MATTER OF UTMOST IMPORTANCE IN ORDER THAT THE OFFICE OF EDUCATION MAY FULFILL ITS DESIGNATED FUNCTIONS IN RELATION TO THE ELEMENTARY SCHOOLS OF THE COUNTRY."

May it be noted in this connection that this Division is designed to serve over three-fourths of the school population in the country—and at that the most important age-group in the country.

SECTION TWO—REPORT ON ELEMENTARY EDUCATION FROM 25 STATES

The second source of information for this report is the collection of responses to the questionnaire as received from 25 states. The first question called for information regarding curriculum developments. There seems to be, as should be the case, the prevailing concept that the curriculum, with its courses of study, is a developmental thing. It is in state of flux and should be improved year by year. Some of the newer courses of which copies were sent to those reporting include the following:

Alabama. *Course of Study and Teachers Guide for the Elementary Schools.* 1941.

Wyoming. *Elementary School Guide.* 1946.

Wyoming. *A Guide for the Program of Instruction in the Language Arts.* 1945.

Massachusetts. *A Curriculum Guide for Primary Grade Teachers.*

Virginia. *Course of Study for Virginia Elementary Schools.* 1943.

Illinois. *A Basic Plan for Health Education and the School Health Program.* 1944.

Kansas. *Physical Education for Kansas Elementary Schools.* 1947.

Missouri. *Physical Education Supplementing the Courses of Study for Elementary Grades.* 1947.

New Jersey. *The School Health Program.* 1947.

New York. *A Manual of Instruction for Administrators, Physicians and Nurses.* 1938.

Kansas. *The Social Studies, Kansas Elementary Schools.* 1946.

Kansas. *Science for the Kansas Elementary Schools.* 1947.

New Jersey. *Building Citizenship in a Democracy through the Social Studies.* 1945.

Kansas. *A Program of Aviation Education for Kansas Schools.* 1946.

Wyoming. *Aviation Education for Wyoming Schools.* 1947.

New Jersey. *First Year in School.* 1944.

Illinois. *The Kindergarten.* 1946.

Kansas. *The Radio Classroom Teachers' Manual.* 1947.

Kansas. *Music Book for the Radio Classroom.* 1947.

Illinois has several specialized bulletins on education of the exceptional child; several states have bulletins on art, music, dramatics. Notably missing are bulletins on speech education. The general bulletins indicate certain trends in thinking by such titles as these:

Kansas. *Better Elementary Schools for Kansas.* 1947.

North Dakota. *Rules and Regulations for the Standardization of Rural Schools.* 1942.

Pennsylvania. *Local Participation in State-Wide Revision of the Elementary School Curriculum.* 1946.

Virginia. *A Handbook for Visiting Teachers.* 1947.

One of the most remarkable of bulletins received was in mimeographed form, from Kansas: *Basic Classic List for Elementary Schools.* 1947.

Special library circulation services are provided in many of the states. Such services may make the classics available.

Gratifying is the report in regard to health education in that the states are working on the program. There is evidence that the need for a constructive nutritional program and a constructive mental health program is being keenly felt.

A very challenging bulletin "Baltimore's Schools" placed in the minds of the writers this idea: Let popular magazines send out pictures, with appropriate legends, telling of ideal school work. The Baltimore bulletin is full of pictures that recommend good practices. Why not give such pictures countrywide circulation?

Reports from the 25 states are indicative of progress in curriculum building for the elementary schools of the nation. The progress is being made cooperatively by school people and citizens in more instances than ever before and to certain ends, in most cases. Wisconsin states the ends thus:

> "—an improved program for citizenship education, stressing democratic rights and responsibilities, based on loyalty to our American democratic heritage, as well as world-mindedness and international cooperation.
>
> "—bringing home the social and economic changes brought about by scientific advances and inventions such as the airplane, radio and television, the atom bomb, etc.
>
> "—greater emphasis on teaching children to read, write, and speak the English language and to use this ability in the democratic process of living and working together.
>
> "—an all-school program for the building of mental and physical health.
>
> "—greater stress on personality development and learning how to get along with others through growing up successfully.
>
> "—preparation for family responsibilities.
>
> "—improved vocational guidance so that every boy and girl may render the greatest possible service to society through useful work.
>
> "—emphasis on the science and mathematics needed for living in this age of scientific and mechanical progress.
>
> "—use of the arts, music, and literature for greater enjoyment of living.
>
> "—more realistic study of present-day social problems, such as conservation, employment, world peace, and the like, with the emphasis on teaching youth how to

make up their minds on such matters.

"—wider use of modern tools of instruction, such as motion pictures and other visual aids, radio and other auditory aids."

BUILDING PROGRAMS

Buildings for elementary pupils are greatly needed throughout the United States. Although several states have mentioned the passage of millions of dollars of bonds for new plants, the construction of additions and new buildings has been delayed for several reasons. The first years of the peace have failed to release construction material or to provide the necessary labor. Costs are also beyond the ability of many districts to pay at the present time. The per cubic foot cost has risen from a pre-war rate of 35-50 cents to over $1.50 in some cities. New York City let one contract at $1.60 per cubic foot, but refused to let other contracts at such a rate. The lack of materials, the scarcity of labor, and the rising costs of construction have combined to throttle building programs and to crowd school buildings with the increasing post-war enrollment.

However, some trends are discernible in planning for new buildings. The report from three states emphasizes cooperative planning by administrators, teachers, and parents. In Minnesota, there is a trend toward a larger classroom designed for fewer pupils. In addition to space provision for files, cupboards, and audio-visual materials, space provisions are being made in many places for shop work, home economics, libraries, science rooms, and auditoriums. Flexible seating, less blackboard space, more bulletin board space, are included in terms of newer concepts of the needs of children.

Many State Departments of Education are realizing and accepting their responsibility for giving leadership in school building construction. Bulletins and other helps are provided in Arkansas, Missouri, North Dakota, and Virginia. Pennsylvania recognizes buildings as "an integral part of 'curriculum.'" Florida's new program includes school planning in terms of engineered building.

EQUIPMENT

Adequate and sufficient equipment for a desirable educational program has not been available during the last several years. Some items have returned to the market for the first time this year. In many instances neither the quantity nor the quality measures compare with pre-war standards, although the price has increased from ten to one hundred per cent.

Ten of the 25 states returning the questionnaire indicate that there have been no special developments in the line of equipment during the year. Others indicate a definite trend toward greatly increased use of audio-visual equipment. The Army and Navy training programs have stimulated this movement. Arts and crafts are being encouraged in New Mexico, while New York has aided schools by the means of three helpful publications, "Planning the Outdoor Physical Education Facilities for Central School," "Planning the School Health Suite," and "Housing the Audio-Visual Program."

The Federal Government has given material assistance to the schools through the distribution of War Surplus Equipment of educational value at a discount of 95 per cent of fair value. All states have benefited from this program, to the extent of millions of dollars worth of equipment.

ELEMENTARY SUPERVISORS

New Jersey presents a unique system. Sixty helping teachers (rural supervisors) "attached to county superintendent's staff, are in reality, decentralized state staff." About 80 city or town supervisors are employed. Two supervisors in the state department's office provide general guidance on the total program. With 142 supervisors in the state, there is one for every 97 teachers.

Recognition of the importance of elementary education is to be noted in the employment of elementary supervisors within state departments of education. However, only a beginning has been made, and much progress may be anticipated within the next few years.

TRENDS IN SUPERVISION

The trends in elementary supervision can best be given as stated in replies received from six selected states:

Alabama: Trend is toward the development of local leadership . . . State offers stimulation and some service in the way of consultants.

Arizona: In-service education by getting all teachers in the state to work on revision of the course of study and curriculum.

Illinois: There is a definite trend away from the conventional inspectorial method to the idea of cooperation in the spirit of improving school situations. This involves visitation with subsequent group conferences.

New Jersey: The most important trend is toward a more democratic kind of leadership.

Pennsylvania: In Pennsylvania, I see a trend toward more building principals (not teaching) to supervise. There is a decided trend toward more help for elementary teachers.

Replies from the various states indicate trends in supervision which may be summarized as follows: increasing emphasis is being placed upon democratic leadership and creative supervision; state elementary supervisors are seeking increased participation in local and state studies and projects; there is a trend toward the employment of more elementary supervisors; more attention is being given to "in-service training" than ever before.

SPECIAL TEACHERS

Data concerning special teachers in elementary education are very meager. Only six of the 25 states were able to report on the number of teachers in art, music, physical education, health, and in other special fields. The one conclusion which can be drawn from the replies received from the questionnaire is that state departments need to give increased attention to this area of the elementary program.

PER CAPITA EXPENDITURE

The per capita expenditure for elementary education in the United States represents a meager outlay of funds for so important a program. The range from $22.60 in Vermont to $218.44 (including high schools) in Wyoming would indicate great variations in the democratic conception of the equality of educational opportunity for all youth. A tabulation of per capita expenditures is revealed as follows:

Range	Number of States	Range	Number of States	Range	Number of States
$20–29	1	$ 80– 89	1	$160–169	1
30–39	–	90– 99	–	170–179	1
40–49	2	100–109	3		
50–59	2	110–119	3	200–209	1
60–69	–	120–129	4	210–219	1
70–79	–				

These expenditures can be taken as a sign of a general trend in the cost of operation of the various states reporting, since there appear to have been different bases of computation employed. The information reported was insufficient to make possible a more accurate tabulation.

The per capita expenditures throughout the United States materially increased during the year. Local, state, and national publicity concerning the plight of the schools brought about some measure of awareness on the part of the public in general concerning the need for adequate support of education. Revenues have been increased through local taxation and state aid throughout the country.

MAJOR IMPROVEMENTS NEEDED

"What are the major improvements needed in the field of elementary education as interpreted by your department?" was the final question asked of the elementary supervisors in the various state departments of education. It is encouraging to note that the improvement most frequently mentioned related to a better understanding of child development, and the adjustment of the curriculum to individual pupils. There exists a general feeling of need for more adequate curriculum studies based upon the more recent developments in understanding child growth and the learning processes. This felt need is the hope of schools for the future.

"More teachers and better qualified teachers" is the second great need in elementary education. The following improvements desired in the various states were significantly important: reorganization of school districts, better and more adequate buildings, more and better supervision, smaller classes, and better equipped classrooms. The need for more adequate state support was mentioned by only one state.

Several individual statements are worthy of note. The elementary supervisor in Kansas senses a need for recognition of the importance of better elementary school buildings with proper equipment. Pennsylvania desires "a better teacher-helping program." The Virginia supervisor strikes an important note when he states that there is need for "developing closer co-ordination of effort among those working to improve elementary education." New Jersey is working on better evaluation procedures, a need expressed by several other states. An urgent need throughout the United States is pointedly stated by New York: "The child development point of view and the mental hygiene approach must be more widely accepted."

The various state departments of education are keenly aware of the improvements needed in elementary education. This awareness will bring about in-service studies, college preparatory courses in child development, and curriculum studies of adjustments to individual needs. Increasing attention to an evaluation program will bring about a clarification of the purpose of the elementary program and materially assist in determining the direction which the program is to take.

SECTION THREE—SALIENT OBSERVATIONS ON ELEMENTARY EDUCATION FROM OTHER SOURCES

An examination of the 1947 numbers of *The New York Times*, Education Page; the 1947 professional magazines on elementary education; and certain of the popular magazines brought to light certain additional features of the elementary education program in this country that bear study in order that the new directions taken may lead to the most desirable destinations. The features are these:

1. Teacher need: According to Dr. Harl Douglas and Dr. Lloyd Elliot, reporting in *School and Society* (66:No.1716) the 1947 school population between six and 13 years of age reached 17,011,000. For these children 13,500 additional teachers (above the 1946 demand) are needed. By 1948, the additional number needed, if one teacher be provided for every 30 pupils, will be 33,000. The need by 1955 will probably be for 134,200 more teachers.

What can be done to prepare for this great need of the most important of America's citizens? A recruitment program should be launched to find very intelligent high school students who would desire to teach if given a basic four years of superior college work in preparation for teaching and if assured of social status and adequate salary.

2. Better rural schools are needed. (See the significant bulletin "Schools Count in Country Life" written for

the United States Office of Education by Dr. Effie G. Bathurst.)

3. Reading should be taught as thinking—experiencing life. Better teaching in this field would cut down educational costs. In no field is better teaching so much needed.

4. Attention must be given to getting at the spiritual values through the right kind of education.

5. The American program of elementary education should be drawn upon for worthy contributions to the UNESCO program.

The report for 1947 comes to a conclusion with the naming of several important yearbooks dealing with elementary education. These important references have resulted from the cooperative thinking of the members of professional organizations. Significant volumes are:

Education of Teachers for Rural America, Department of Rural Education, National Education Association.

Early Childhood Education, Forty-sixth Yearbook, II, National Society for the Study of Education.

Future Teachers of America, Sixth Yearbook, Future Teachers of America, National Education Association.

Leadership through Education, Association for Supervision and Curriculum Development, National Education Association.

Learning World Goodwill in the Elementary School, Twenty-fifth Yearbook, National Elementary Principals, National Education Association.

Schools for a New World, Twenty-fifth Yearbook, American Association of School Administrators, National Education Association.

The Study and Teaching of American History, Seventeenth Yearbook, National Council for the Social Studies.

SECONDARY EDUCATION

By Robert S. Gilchrist and Mary L. Beauchamp
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ENROLLMENT

It is estimated that there are 6,300,000 students in the secondary schools in the United States in the school year 1947-48, only a slight increase over the number enrolled in 1946-47. Employment opportunities affect secondary school enrollment decidedly, as was evident during the depression and the war years. The decline in youth employment since the war has not been as rapid as anticipated. The National Child Labor Committee has outlined a four-point program as a campaign to encourage secondary school students in future years to stay in school. This program includes (1) efforts to eliminate exemptions for children under 16 years in the compulsory attendance laws and to bar all employment during school hours for children under 16; (2) efforts to regulate the type and amount of employment which school age children are permitted to undertake in addition to their school work; (3) efforts to secure compliance with child labor regulations; (4) elimination of factors that lie within the province of the school to remedy. The type of school program needed in order to hold those who now drop out is considered a major problem of secondary education today.

Educators are giving more attention to the fact that enrollment in the secondary schools is affected by the economic status of the home. Children whose parents are at the lower income levels do not have the educational opportunities they or their parents desire. Youth of equal intellectual ability do not have equal educational opportunities. Students without money find it embarrassing to go to high school and be unable to participate fully in student affairs. Impetus to provide financial opportunities for all secondary school students to attend high school is given by the report of the Commission on Higher Education appointed by President Truman to make recommendations concerning educational problems at the college level. This commission, under the chairmanship of George Zook, president of the American Council on Education, has recommended that free public education should be extended through the first two years of college. It is also recommended that fellowships and scholarships should be vastly expanded, with more subsidy recommended for the individual student who can not afford to attend the 13th and 14th years.

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* The writers made extensive use of the following in collecting information for the review: *The Clearing House, Bulletin of the National Association of Secondary-School Principals, Educational Leadership, School Review, Education Digest, N.E.A. Journal, School Life, California Journal of Secondary Education, Educational Research Service Circulars, Progressive Education,* and *N.E.A. News.*

TEACHERS' SALARIES

Salaries paid during 1947 were substantially higher than those paid in earlier years. It is estimated that the average salary of teachers, principals, and supervisors for the school year 1947-48 is $2,550, which in terms of purchasing power will buy approximately the same amount of goods and services as in 1939-40. State legislatures during 1947 passed legislation which added $350,000,000 to the salaries of teachers. In some states, salaries were increased 50 per cent. Many teachers whose salaries were unusually low have been more than doubled. The National Education Association has recommended a $2,400 minimum and a $5,000 maximum for four years of training. Six states now have a $2,400 minimum salary.

TEACHER SHORTAGE

There is evidence that teacher shortage conditions were slightly improved in 1947 over the three preceding years. For the school year 1947-48, there are approximately 102,000 emergency certificates in use. In October 1946, the estimate was 110,000. In October 1946, there were 14,361 vacancies which could not be filled. In October 1947, this had been reduced to 7,633. The teacher shortage continues to be most serious in rural schools and in science and vocational fields at the secondary level. The quality of teachers, which is open to serious question, will be raised significantly only when states discontinue issuing emergency certificates. Such action is being urged by the National Commission on Teacher Education of the N.E.A. The commission also is recommending that life certificates be discontinued in favor of a certification system in which teachers will need to show evidence that they have kept up-to-date through continued professional study.

Enrollments in teacher education programs in the colleges of the country, although approximating pre-war enrollments, are far short of estimated needs for teachers. Unfortunately, the enrollments by states are not in terms of the shortages which exist according to an analysis by states. In wealthy states where salaries are comparatively adequate, high teacher education enrollments are found. In those states where salaries are lowest, enrollment in teacher education institutions is very low.

ATTITUDE OF LAYMEN TOWARD EDUCATION

Articles in lay magazines during 1947 changed in their emphasis of educational problems. For the past several years, magazine articles have dealt with the theme of good teachers leaving the profession, the fact that salaries are too low, the desire of teachers to be treated as human beings, and the necessity for something being done about it. During 1947, more articles appeared in which an analysis was made of how good a job of teaching is being done to prepare pupils for living under present day conditions. Laymen indicated that they are coming to believe that the welfare of America depends on the strength of public education. The campaign being carried on by the advertisers of America is indicative of the trend.

When the Advertising Council met in New York City in September, a non-profit national advertising campaign was launched informing the American people of the nation's educational difficulties and the importance of their schools. This campaign is appearing in magazines and newspapers throughout the country in the form of full page advertisements by various companies and businesses. Raymond Rubican, member of the Committee for Economic Development, called on the nation at the conference to devote more of its resources to education, no matter what else is cut or left out. He said, "We must equip ourselves for a bigger educational job, for our own salvation. If we have an ounce of national common sense, we will not permit the continued discouragement of our educators and the decline of our schools."

Labor's interest in education is indicated by an excerpt from a speech by Harold Hanover, secretary-treasurer of the New York State Federation of Labor, at an educators' conference in New York State: "The hour is late, but there is still time for the public awakening that can bring the correction of the injustices of other years which have brought the nation to its present unhappy pass in the field of education; which can make of education a dynamic process that readies the individual for his opportunities and responsibilities as a citizen, . . ."

FEDERAL AID

Senate Bill 472 was introduced in the United States Senate Jan. 31, 1947. The bill was bipartisan in its sponsorship. The purpose of the bill is to authorize an appropriation to assist the states and territories in financing a minimum foundation school program of public elementary and public secondary schools and in reducing the inequalities of educational opportunities. The chief provisions of the bill include: (1) Federal aid to assist the states where needed to finance a 40-dollar minimum program per pupil in average daily attendance; (2) distribution of funds to the states in direct proportion to need and effort and in inverse proportion to financial ability; (3) provision of $150,000,000 the first year, $200,000,000 the second, and thereafter $250,000,000 per year; (4) each minority racial group in each state is assured a proportionate Federal fund in an amount not less than the population ratio that each minority racial group in the state bears to the state total population; (5) the bill safeguards state educational controls.

When the second session of the 80th Congress convenes in January 1948, the drive for enactment of the Federal aid bill will enter its final stages. In the Senate the policy of the majority party is favorable. In the House the situation is not so clear. One of the chief issues has to do with public support for non-public schools. Senate Bill 472 provides that Federal funds may be expended by a state for any current expenditure for elementary or secondary school purposes for which educational revenues derived from state or local sources may legally and constitutionally be expended in such state. This provision adheres to the principle of state rights or state control. Each state would, under this provision, make its own decision on whether a private school might receive funds through Federal source.

MILITARY TRAINING

The National Education Association believes that compulsory peacetime military training is not necessary for our national defense under present conditions and is not an institution compatible with the American type of democracy. The N.E.A. delegate assembly authorized its defense commission to continue its efforts against the adoption of compulsory military training. The Secondary School Principals Association division of the National Education Association has also gone on record as opposed to military training.

The provisions of the present military training bill before Congress are largely in terms of recommendations made by an advisory commission on universal military training appointed by President Truman. This commission includes prominent educators and religious leaders of the country. The American Council on Education, which has consistently opposed the bills for universal military training which have been before Congress, had asked the President to appoint an unprejudiced commission to study military training. The commission named by President Truman, however, was not the commission as recommended by the American Council on Education. Many think that it includes members who were basically in favor of universal military training before their appointment to the committee.

Congressman Gerald W. Landis from Indiana introduced on Jan. 24, 1947, a resolution in the House of Representatives against the adoption of universal military training. The final paragraph of this resolution follows: "Resolved, That, before the United States adopts compulsory military service, the President of the United States, the Secretary of State, and the United States Delegate to the United Nations organization, Warren R. Austin, be, and hereby are, urged to work unceasingly for an immediate international agreement whereby compulsory military service shall be wholly eliminated from the policies and practices of all nations."

STATE EDUCATIONAL LEGISLATION

During 1947, nearly every state in the union passed legislation affecting education. In the main, this legislation had to do with making available to the schools more state aid. Arizona has a new school support law through which schools will now receive $115 per pupil in average daily attendance. Additional funds made available to Arizona schools by this law will average more than $1000 per teacher, with most of the money going into teachers' salaries. In Arkansas, there was an increase of $8,000,000 in the appropriation for the next biennium. California's new appropriation law provides a foundation program of $175 per pupil in secondary schools and $200 per student in junior colleges, plus state aid for transportation. Connecticut increased its state aid by over one-third. Iowa's appropriation of $13,000,000 is a 266 per cent increase.

Florida, by doubling the state appropriation for schools, indicated that the citizens of that state will be satisfied only with the best of educational facilities and conditions. Their program is the result of three years of concentrated efforts involving widespread participation of lay and school groups. When the legislature met, it was evident that the citizens wanted an improved school system. All the major educational bills were passed. A foundation program to provide minimum essentials was inaugurated. Seven hundred separate taxing districts were combined into 67. Ten months of service are required for all members of the instructional staff. Scholarships for prospective teachers have been increased to 1,000 annually. Improvements have been made in the retirement system.

JUNIOR COLLEGES

Social forces are at work in the United States which may bring about important changes in secondary education. The junior college movement has spread until there are now more than 650 such institutions, approximately one-half of which are units of public school systems. Since there is a general upgrading of the age of the working population as a whole, the press for more education and a different kind of education is coming both from those who are waiting to find places in adult society and from those who are looking for higher positions.

The American Association of School Administrators, at the 1947 convention in Atlantic City in March, went on record in favor of extending universal free education through the completion of the secondary school period, including grades thirteen and fourteen. They further stated that this education should be available irrespective of the financial ability of the individual family.

Commissioner Studebaker, in summarizing the need for an education beyond high school, says: "We need a new kind of school, a school to carry free public education two years beyond the present high-school level, a school to give every American youth an opportunity to get both the cultural and the vocational background he needs for a fair start in life. This is a job for a higher high school, a school in which the last two years of the present four-year high school would be extended and reorganized to bridge the gap between the general studies of the earlier years and the beginning specialization of vocational, technical, and professional education."

Throughout the nation, states are attempting to provide more opportunities at the junior college level. In New York State, regional institutes are being developed. The institutes are supported and administered by the state. The curriculums are planned to help youth gain competence for those occupations between the trades and the professions. They are organized on the principle that occupational competence, family life, religion, art, government, and education are inseparable parts of the organic life of both the individual and society.

Most educators, in considering the need for education beyond the twelfth year of high school, are recognizing that merely "tinkering" with existing systems by adding two years of college is not enough, that the two additional years of education needed are to complete their general education, to fit them for work and citizenship rather than merely providing college academic courses.

LIFE ADJUSTMENT EDUCATION FOR THE HIGH SCHOOL

The Office of Education arranged five regional conferences to discuss the implications of Dr. Charles Prosser's resolution of 1945. These regional conferences culminated in a national conference in the spring of 1947. The national conference recommended that there be established the National Commission on Life Adjustment Education. This commission has been appointed, and it is hoped that state departments of education, teacher training institutions, and local school districts will join forces in making a concerted attack to put more vitality into the secondary schools. It is hoped that work experience, training for family living, consumer education, car driving, health and safety, leisure time, and practical citizenship activities may become a part of the experiences of every boy and girl in his or her high school education.

Another approach to improving secondary education has been provided by the National Association of Secondary School Principals. The March 1947 issue of the Bulletin of this association is devoted to "a report of its committee on Curriculum Planning and Development dealing with the common and essential needs of youth in a democratic society. The report is in reality a nationwide survey of significant contributions to the curriculum by leading schools throughout the United States. The committee invited leaders in secondary education to designate schools which have made contributions with respect to one or more of the following imperative needs of youth.

"1. All youth need to develop salable skills and those understandings and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised work experience as well as education in the skills and knowledge of their occupations.

"2. All youth need to develop and

maintain good health and physical fitness.

"3. All youth need to understand the rights and duties of a citizen of a democratic society, and to be diligent and competent in the performance of their obligations as members of the community and citizens of the state and nation, and of the world.

"4. All youth need to understand the significance of the family for the individual and society and the conditions conducive to successful family life.

"5. All youth need to know how to purchase and use goods and services intelligently, understanding both the values received by the consumer and the economic consequences of their acts.

"6. All youth need to understand the methods of science, the influence of science on human life, and the main scientific facts concerning the nature of the world and of man.

"7. All youth need opportunities to develop their capacities to appreciate beauty in literature, art, music, and nature.

"8. All youth need to be able to use their leisure time well and to budget it wisely, balancing activities that yield satisfactions to the individual with those that are socially useful.

"9. All youth need to develop respect for other persons, to grow in their insight into ethical values and principles, and to be able to live and work cooperatively with others.

"10. All youth need to grow in their ability to think rationally, to express their thoughts clearly, and to read and listen with understanding.

"More than a thousand schools were listed by the leaders consulted, and all these schools were invited to cooperate in the study by submitting curriculum materials, outlines, plans, and reports. These were analyzed, classified, summarized, and synthesized by the committee in light of the significance of their contributions to the satisfying of the ten imperative needs. . . .

"The discussion of each of the 'imperative needs' is supported by illustrations of successful practices of schools reporting contributions in the particular curriculum area. The committee concludes, on the basis of the contributions considered, that the provisions being made for youth in many of the schools are worthy of commendation. However, the committee warns that the many schools not reporting need to prod themselves educationally to provide for all their youth, and that all schools would profit by checking their objectives and practices against these findings."

Significant publications on secondary education during 1947 include the Eighth Yearbook of the John Dewey Society entitled *The American High School: Its Responsibility and Opportunity* and *Reorganizing the High School Curriculum* by Harold Alberty. Both these books emphasize that an important basis for determining the curriculum should be the developmental needs of adolescence. The books urge educators to decide the nature of the curriculum in terms of the demands that life makes on young people. The values that our democracy holds to be important are considered to be another important criterion in terms of which to measure the effectiveness of the school.

CITIZENSHIP AND IMPROVED HUMAN RELATIONS

Research indicates that the high school student himself is concerned about citizenship and human relations problems. In a survey in the state of Washington of 6,000 members of the graduating classes of 154 high schools, it was found that more than 30 per cent of the students felt that the United States has more responsibility than any other nation toward the future of the peace of the world. The survey also indicated that just as many students were groping for spiritual security and not finding a satisfying answer in their search. Secondary school counselors and teachers are finding that high school boys and girls are attempting to clarify their values and to develop reasons for living which give their lives direction. Perhaps no emphasis is being made in the secondary schools which has more promise for changing the substance and structure of secondary education than the attempts of schools to provide better citizenship education.

These attempts are, in the main, finding their points of departure in projects where there is an emphasis to improve human relations. This is being done not only because of the close relationship between improved human relations between individuals and the possibility of a stronger democratic nation in this country and a stronger world which can learn how to avoid war, but also because of a recognition of the needs of individuals. It is being recognized more and more that improved human relations must come about through individuals clarifying and establishing the values by which they live. As one educator states the trend, "there is developing a concern for a new concept of education, namely, that teachers ought to do more in helping young people clarify their attitudes, beliefs, and values so that they will better know what it is they do believe and to what the consequences of their beliefs seem to lead."

Schools are trying a variety of approaches in their emphasis on human relations. In Delaware schools, periods are devoted to a project for improving human relations. Stories illustrating such themes as the following are read and discussed: Emotional Problems at Home, Inferiority Feelings, How Emotions Affect Us Physically? Overcoming Personal Handicaps and Unpleasant Emotions. Students analyze the emotional forces involved, isolate and discuss the conflicts and problems of the characters, evaluate their personalities. This approach gives the students more security in talking about themselves. They often comment on a similar problem which they have faced and how they attempted to solve it. Belief in this kind of procedure is based on the idea that children gain insight into themselves through such discussion. From this self-understanding, they achieve more tolerance and more appreciation of other people and the problems of other people. Other schools are using sociometrics and sociodrama techniques to help youth realize the factors that are at play in groupings and in the solution of individual and group problems.

Teachers in each of the subject fields are becoming more cognizant of the possibility of their subjects for helping students to understand themselves and how to get along with other people. For example, in the study of literature it is often possible for teachers to select stories or books which portray a problem in the realm of human relations. Problems of discrimination, segregation, and social isolation as they relate to individual communities and to the nation as a whole are studied directly in social studies classes.

A starting point for improving human relations in a school, thereby contributing to citizenship education, has often been an attack on problems arising because of the tensions between individuals and groups of different races, creeds, nationalities, and economic levels. Schools which have been working in this area of intergroup education have profited immensely from the activities of several national groups whose purposes have been to improve intercultural and intergroup education. Among these groups are included the American Council on Education, the American Association of Teachers Colleges, and the Bureau for Intercultural Education.

FAMILY LIFE EDUCATION

According to one writer in a lay magazine, not very much is being done about education for family life, especially that phase which deals with sex instruction. This writer states that 20 per cent of the country's schools do absolutely nothing in this area. In another third, the individual teachers do offer some personal guidance to individual students, and less than half provide special lectures by the school nurse, the doctor, or some outside expert scheduled at infrequent times. The author of the article feels that these special lectures often leave young people more confused, afraid, and maladjusted than before because they are not part of a well thought through plan for providing experiences in the regular school curriculum in the area of home and family living.

After taking a course in college on marriage and the family, three Texas young people stated the case rather succinctly for home and family living education at the high school level. These individuals say:

"When we were in high school, we were confused and bewildered by vague, sporadic, and conflicting notions regarding marriage. We had gathered these ideas from movies, magazines, and casual, jocular advice from our fellow students, our parents, and our elders. From the two latter groups too often came the admonishment—of no particular value, 'Just wait till you're married; then you'll find out for yourself.'

". . . Remembering that the majority of high-school students do not go on to any sort of college—only 29 per cent of high-school graduates ever enter college—we believe that marriage should be studied before the completion of the twelfth grade. . . .

"We believe that such a high-school course should be essentially the same as that offered in a college curriculum: history of the family, the function and social importance of the family, mate selection, the period of courtship, the problem of marital adjustments, the unhappy union, and the chief factors contributing to successful marriages.

"Somewhere in the course we believe that the facts of sex and human reproduction could be discussed as a significant, but certainly not exclusive, aspect of the marriage relationship. We are aware that the inclusion of this last point is a moot question among educators today; but we believe that the effect of teaching sex as a part of the course in marriage and the family would place sex on its natural plane without giving it undue emphasis in the minds of the young people receiving the instruction. . . .

"Decidedly, there is a gap between the eager questioners and the available information. That gap can best be filled, we feel, by giving high-school students the opportunity to tap reliable sources on marriage and family relationships. They will have a very intense, and certainly justifiable, interest in the materials that may be thus presented, and they will reap a rich harvest of information and attitudes of the proper sort relating to what most of us would characterize as the most important aspect of life!"

Home and family living is receiving more attention by national organizations. The Family Life Institute held a national conference at Berkeley, Calif., during the summer; and the California Adult Education Administrators meeting held one entire section on the subject. Progress is being made along several fronts: (1) many cities are experimenting with community organization for better family living; (2) secondary curriculum is being reorganized to include courses in family living and family relations; (3) lay and teacher leadership is being trained through national institutes and in-service courses; (4) materials suitable for use by high school students are being developed. Some foundations are sponsoring research for this purpose; (5) systematic efforts are being made by groups of medical and health workers, educators, psychiatrists, and religious leaders to develop the best techniques for teaching sex education.

WORK EXPERIENCE

Since 1930, educators have been forced to consider the relation of work experience to the program of the schools. During both the depression years and the war years, educators recognized that there were educational values to be derived from work experience, providing the work was of an appropriate nature and adequately supervised. It is becoming increasingly evident that work experience, if it is to be a part of the lives of adolescent boys and girls, can be so only because society recognizes that work should be the birthright of every American boy and girl as he grows into a young adult. When Wilson Ivins of Indiana University surveyed the field of work programs early in 1947, he found that work programs have probably quadrupled in the past decade. According to the results of his survey, 1,859 secondary schools of the United States have some form of work programs. Five hundred sixty-four offer school part time work programs in diversified occupations; 545 offer cooperative distributive occupation work programs. One hundred eighty high schools have other cooperative programs, including primarily trade and industry. Two hundred seventy-nine high schools report that they operate camps. Two hundred thirty-seven of these are in the state of California. Two hundred ninety-one schools commented that they have community schools and, in that sense, offer work experience as an integral part of their program. There seems to be a definite growing interest in cooperative education in which students near the end of their formal education work part time under the supervision of a staff member of the school and go to school the other part of their time, taking subjects in which an attempt is made to relate their instruction at school with their experiences on the job.

HEALTH AND RECREATION

The high percentage of rejectees during the war emphasized the need for more attention to health in the secondary schools. Judging from the educational literature published in 1947, very few school systems have crystallized their thinking about how to improve health programs. Three trends which seem to be characteristic of most developments are encouraging: (1) the health program is a responsibility which must be shared by the entire school; the tendency in the past has been to make health a responsibility of a single person or department, usually the physical education teacher; (2) the health program must be made vital and dynamic in the lives of students; it must become functional to the extent that it affects the behavior of youth, that youth take pride in their own physical well-being; (3) the health program of the school must seek the active cooperation of all related community agencies; there must be a coordinated approach to health, and the school seems the logical coordinating body.

School systems, in revising their health curriculum, are recognizing the importance of these trends, and teacher education is beginning to take place to make possible a more functional health program. Prospective teachers in California, for instance, make a study of community organizations which offer health services.

Many schools have found the establishment of a health council, representing school and community personnel, an effective way to determine policy and isolate and solve problems as they come up.

Educators in the secondary field seem to be rapidly accepting recreation as a legitimate function of the high school. This acceptance comes as a result of believing that recreation is an antidote for delinquents, or that leisure hours demand training in recreation, or that recreational activities contribute to developing those behavior characteristics necessary for democratic living, such as ability to get along with each other, recognition of the rights of others, and respect for the dignity of an individual.

California has been a leader in the recreational field. The state has two laws, the Civic Center Act and the Recreation Enabling Act, which stimulate the development of recreation in the schools of the state. The state department has recently established a unit on recreation in the Division of Health, Physical Education, and Recreation. In Los Angeles, a youth service program has been introduced and placed as an integral part of the curriculum division in the school organization. Seven areas of activity are outlined as legitimate pursuits for schools, and supervisors are provided to render service to the schools in developing their programs in these areas. The activities include intramural sports, sports carnivals, athletic clubs, off-campus activities such as swimming, hiking, excursions, bowling, camping in the summer and on week ends, group activities such as social dances, co-educational play days, festivals, and special interest activities such as arts and crafts hobbies, special dance groups, drama, music, and art.

The Federal Government has indicated its growing interest in assisting in the field of recreation through the establishment of an inter-agency committee. This committee includes membership from the various parts of the Federal Government which have functions in relation to recreation.

Camping and outdoor experiences are receiving increased emphasis on the part of secondary school educators. According to the American Association of School Administrators, only five per cent of the boys and girls enrolled in schools in the United States have had any type of camping experience. Educators recognize that most boys and girls could profit not only physically but socially, emotionally, and intellectually from a form of camp experience. Camping provides a natural and realistic environment for learning and permits boys and girls to practice democratic living in a simple and direct fashion.

AUDIO-VISUAL EDUCATION

According to a survey of the Research Department of the National Education Association, 80 per cent of the school systems in cities over 100,000 population have special audio-visual departments. There are fewer departments in schools as the sizes of school systems grow smaller. Of all cities reporting in the survey made, three-fourths estimated that their method of selecting, utilizing, and administering radio and film aids was not satisfactory. The median per pupil expenditure for instructional materials, apparatus, equipment, and administration in the audio-visual field was thirty-three cents.

A significant development in audio-visual education is the formation of the Film Council of America, a national organization designed "to foster and promote the production, distribution, and use of the informational film media for the general welfare of all people." Seven national organizations have joined together in the creation of the Film Council. The purpose of the Council is to coordinate and intensify the efforts of numerous existing and prospective organizations interested in the development and use of educational films.

Radio as a means for improving education is receiving increased attention on the part of educators. One writer states that radio can (1) vitalize the work of the classroom, (2) supplement and enrich school room educational experience, (3) motivate students to further learning, (4) train youngsters in discriminating listening.

The use of FM radios is increasing. The Federal Communications Commission has cleared twenty channels for educational use. State-wide networks are now being planned in Alabama, California, Connecticut, and eighteen other states. Large city school systems like Cleveland, New York, Chicago, and San Francisco, and universities such as the University of Illinois and the University of Kentucky are already making use of FM frequency radio broadcasts. There are now twenty-one stations under construction. A goal has been set to blanket the country in the next five years with FM radio station coverage. The United States Office of Education and the Federal Radio Education Committee are giving leadership to this movement and are anxious to help the states in planning their networks.

Television is appearing on the horizon as a part of the regular school program and is being experimented with on a limited basis.

TESTING AND EVALUATION

The Educational Records Bureau estimates that 60,000,000 standardized tests were administered to about 20,000,000 persons in the United States in 1944. Military and civil service use accounted for a large share of this number, but 26,000,000 tests, it is estimated, were given by educational institutions, business firms, and personnel consultants to more than 11,000,000 individuals. There is a trend since the war for schools to examine their testing programs and to employ more adequate testing technicians.

It is estimated that between 600,000 and 700,000 veterans have taken the high school level General Education Development tests and at least 500,000 have received high school diplomas or equivalency certificates. In terms of their experience with G.E.D. tests, 11 states have already accreditation policies to include the awarding of high school equivalency diplomas or certificates to non-veteran adults, as well as to veterans. In all of these states, the G.E.D. tests are being used as the basis for granting these certificates. The wartime experience with the General Education Development tests has sharpened the question of whether educators can devise a means of determining how much and how well a person has learned which will be more accurate and more useful than a mere transcript of his record in school. The G.E.D. tests themselves are at least a partial answer to this question.

Many schools are recognizing that they can no longer send report cards to parents which are limited to assigning marks in the traditional subjects if at the same time the schools are saying that they include in their purposes the development of desirable citizenship qualities, the ability to understand and participate effectively in home and family living, and other comparable purposes. In Portland, Ore., one high school has changed its report card to include achievement in skills and understanding and in habits and attitudes. The school's report to parents is in terms of whether the child's achievement is better than, consistent with, or poorer than could be expected in the light of what the school knows about him. This Portland high school has decided that evaluation of achievement should be in terms of an individual's ability and measurement in terms of himself, rather than a comparison with the group.

ADMINISTRATIVE POLICIES AND PROBLEMS

Educational literature of 1947 seems to indicate that secondary school principles are becoming more clear that the major purpose of school administrators should be to enable pupils, teachers, and parents to work together in developing an effective program of education. Illustrative of the kind of planning being done by some secondary school administrators is a report from a committee of the fourth annual state-wide Conference of Maryland High School Principals. This committee identifies five areas of administrative activity by which the principal can best implement an effective program: (1) adjusting the school's schedule to provide a more functional program; (2) making available adequate facilities; (3) providing supervision conducive to the evolving of the new program; (4) making available adequate guidance services; (5) formulating working techniques by which to evaluate the success of a program.

An agreement reached between the colleges and secondary schools of Michigan may indicate a trend which will free high schools to more effectively serve all boys and girls. In Michigan, an alternative plan of admission to college is offered to all university approved secondary schools which pledge to assume certain responsibilities for the all-round development of youth and for keeping more complete records of growth.

During 1947, many schools moved in the direction of opening their facilities for more time than the traditional five days a week, seven hours a day, 36-38 weeks a year. In Madison, Wis., the schools were opened on Saturday, with more than 3,600 boys and girls attending school voluntarily. The Saturday program includes such features as sports and games, crafts, dramatics, music, gymnastics, club activities, motion pictures.

The schools at Rochester, Minn., and Glencoe, Ill. now employ their teachers on a 12-month basis. This enables the school systems to sponsor summer activities of an educational and recreational nature. Commissioner Studebaker, in addressing the secondary school principals of the nation at their February meeting, predicted that all secondary education in a few years would be concerned with the activities of boys and girls the year around. He emphasized the possibilities of outdoor and camping education as part of this year around program.

As secondary schools attempted to provide a more functional organization in which the real problems of boys and girls constitute the curriculum, more consideration was given to assigning a teacher to teach a group of boys and girls for a block of time longer than an hour. Generally, this teacher assumed the guidance responsibility for the boys and girls whom he taught in this core or common learnings block of time. This curriculum organization which attempts to break down subject field barriers permits a teacher to work with fewer students during a day. He works with the same students for a longer period of time, thereby learning to know them better. The pupils are given a chance to participate in planning for the activities of the unit being studied. The units are based on the personal and social problems which confront young people as they grow up.

PARTICIPATION BY FACULTY, STUDENTS, AND PARENTS

Present emphasis on the importance of group participation in planning the secondary school program is indicated by articles in various educational magazines during 1947. In Battle Creek, Michigan, the curriculum development program provides opportunities for many staff members to work together in improving the instructional program. Recognition is given to the importance of the individual school being the unit for curriculum development. In Battle Creek, meetings of the general faculty, principals, supervisors, counselors, and working committees are held on school time. Meetings of study groups organized on a voluntary basis are held after school.

In Winnetka, Ill., the staff, through their group planning and sharing of responsibility, have come to certain conclusions: (1) they believe that it is important for all persons affected by decisions to share in making them; (2) individual activity contributes to group activity; (3) the personal and educational growth of teachers is stimulated through direct personal participation in group planning; (4) group decisions must be based upon accurate and well assimilated information; (5) the best leadership is group leadership; (6) genuine authority should accompany responsibility and vice versa; (7) group planning and action is a means to better supervision. Faculty participation in improving secondary education is widely sought in Minneapolis, San Diego County, California, and many other places throughout the nation.

There is a trend not only for students to participate more completely in their own individual school's community life but also to join together with students of other schools in joint enterprises. In Minneapolis, the senior high school student councils have joined together to establish an all-city student council. This student council heads up the activities of high school students in civic projects, such as helping to acquaint the public with school financial problems and providing help to distressed communities in Europe. In California a state association of student councils has been formed. The Secondary School Principals' Association sponsors a national association of student councils.

The student council president at Alice Deal Junior High School, Washington, D. C., summarized the yearning which adolescents have for feeling that they belong to a group when he said, "Give us kids something to live up to and we will be all right."

Participation in creating an effective secondary education includes not only faculty and students but also parents, according to several leading educators who describe effective programs in the educational literature of 1947. Morris R. Mitchell describes the completely cooperative life of Williston, Minnesota, where education is a family and community activity for young and old. In Williston, the school nursery is a community enterprise. The library is a materials bureau for everyone. The recreation hall serves youth and adults. The community owned forest is the special responsibility of the secondary and junior college groups. A higher standard of living and a profound respect for human beings are outcomes of the Williston program, according to Mitchell.

The Sloan Foundation experiment in home economics provides evidence of the improvement in standards of living which can be brought about through the cooperative effort of adults, teachers, and laymen working together. Experimentation in housing was carried on in Florida, on food in Kentucky, on clothing in Vermont.

EDUCATION FOR THE PROFESSIONS

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GENERAL

Common concerns of those educating for the professions were expressed during the year 1947 over the following problems: meeting the changing needs and demands of society; providing satisfactory preparation in expanding programs for increasing numbers with inadequate staffs, funds, and facilities; securing the most able students; determining new types of experience necessary for modern professional preparation; keeping the practitioner up-to-date; developing more effective teaching methods; and promoting needed research. Trends in education for the professions are toward increased emphasis upon general education, longer curriculums, integration of courses, greater cooperation with industry, and more extensive use of community resources. Large increases in enrollments or in applications for places in most professional schools have overloaded staff and facilities. Increasing numbers of foreign students are seeking professional education opportunities in the United States. The Division of International Educational Relations of the United States Office of Education offers its facilities in evaluating credit from foreign institutions.

DENTAL EDUCATION

Enrollments.—The total undergraduate enrollment in the 40 dental schools of the United States, as of Oct. 5, 1946, was 8,287, of whom 117 were women. Forty-eight per cent offered two years of liberal arts education for admission; 24 per cent offered three or four years but no degree; whereas 28 per cent offered a bachelor's degree. Students enrolled from every state. The maximum of 10,000 which can be handled in existing schools is expected to be reached in the next few years. The Council on Dental Education predicted a freshman dental school enrollment of 3,022 in the autumn of 1947. During the year ending June 30, 1946, a total of 2,666 students in the United States received dental degrees, 264 completing combined courses. The annual average for the previous five years was about 1,700. The peak was in 1945 when there were 3,212 graduates. In November 1946 the number of women dentists in the United States approximated 1,000.

Selection.—The Council on Dental Education initiated a program of aptitude testing in dental schools in the fall of 1946, not as a condition of admission, but to secure data over a five-year period to determine who should study dentistry. Objectives of the test are to measure the student's abilities; to read with understanding the type of material that he will expect to read in dental school; to memorize verbal and visual material; to visualize patterns and relations without the necessity of preparing drawings; to express himself verbally and in writing; to use his hands and fingers skillfully and dexterously; and to comprehend general and scientific word meanings.

Curriculums.—A poll of dentists by the Pierre Fauchard Academy Poll Panel during 1947 revealed that 21 per cent of them would increase pre-dental requirements, whereas, 79 per cent would not. Thirty per cent would confine pre-dental courses mainly to scientific and related subjects contributing directly to professional needs, and 64 per cent would include liberal arts training. Six per cent believed that the dental course should be lengthened, while 8 per cent would shorten it, and 86 per cent would not change it. A previous poll had shown that 84 per cent of dentists considered the usual dental college curriculum inadequate for meeting the needs of the dentist in practice. Several short and "refresher" courses have been announced. The University of Minnesota, with the aid of a grant of $95,975 from the W. K. Kellogg Foundation, has established short courses emphasizing closely supervised clinical work for discharged dental officers of the Army and Navy and for general practitioners. Extension courses are offered dentists at the Dental University of Detroit. The scheduling of two-week, one-week, and a day-a-week postgraduate courses during 1947-48 is announced by the University of Michigan, in cooperation with the Kellogg Foundation Institute. The program is open to civilian dentists and returned servicemen to whom less expendable instruments are provided on a loan basis.

Announcements.—In order to give the Dental Branch of the University of Texas equal status with the Medical Branch, Dental Dean Elliott was elevated to a vice presidency of the University, a position comparable to that held by the medical dean. Temple University's new million-dollar home for its School of Dentistry was expected to be ready by autumn, 1947. Three prominent leaders in American dentistry left for Europe in June 1947 to organize a series of refresher courses in modern dental techniques for dentists among Jewish displaced persons in Germany, Austria, and Italy, under a program sponsored by the Joint Distribution Committee, an American agency aiding Jewish survivors overseas.

Fellowships and Grants.—In April 1947, Northwestern University received a $100,000 gift to support fellowships, teaching, and research in dentistry for children. The Ohio State University received a Kellogg Foundation grant for dental research in 1947. What is planned to be the greatest medical research center in the world will be built at Forest Glen, Maryland by the Office of the Surgeon General at an estimated cost of $40,000,000. The Institute of Medicine and Surgery will house research dentistry, research medicine, veterinary medicine, research surgery, x-ray and radiation, and preventive medicine.

ENGINEERING EDUCATION

Need for Engineers.—According to Karl T. Compton, future demands for engineering graduates will more than double those existing before the last war. A survey conducted among 125 large companies by a Committee of the American Society of Engineering Education also indicates an increase in future annual demands for engineers. The number graduating from engineering schools declined steadily to a low in 1947 of less than 7,000, including those in Army and

Navy sponsored programs, as compared with almost 15,000 graduates annually in the early war years. The Division of Higher Education of the United States Office of Education is analyzing engineering enrollments to follow up its recent study of supply and demand in that profession. In cooperation with the American Society for the Advancement of Engineering Education, it reported the total enrollment in the professional schools of engineering in November 1946 as 223,000 including 93,000 freshmen. This was 340 per cent of the enrollment for 1945. In May 1947 the Veterans' Administration reported the enrollment of 171,885 veterans in engineering curricula under Public Law 16 or 346. Industry continues on-the-job training in engineering education and research.

Curriculums.—The Committee on Engineering Schools of Engineers' Council for Professional Development has again deferred its proposed review of curriculums of member schools until college conditions are more normal. The Mechanical Engineering Department, along with other divisions of the Institute of Technology at the University of Minnesota, has adopted a five-year curriculum for entering students other than veterans of the Second World War. This program leads to the Bachelor of Mechanical Engineering degree. Students with 1.8 honor point averages, or higher, will receive a Bachelor of Science degree, upon petition. Effective September 1947, the North Carolina State College of Agriculture and Engineering increased the amount of time devoted to the humanities in its undergraduate engineering curriculums, although reducing the total credit hour requirement. A fifth year of specialized graduate work leading to a master's degree is available to superior students. Plans at Cornell University provide for an expanded program of instruction and research in Diesel Engineering following the receipt from the Navy Department of Diesel engines and related equipment valued at more than $2,000,000. Agricultural engineering is strengthening its affiliation as a phase of engineering education. Agricultural engineering schools are administered as follows: by school of engineering, 8; jointly by engineering and agriculture, 9; and by school of agriculture, 10 (7 of these are in southern states).

During 1947, Engineers' Council for Professional Development approved for the first time a curriculum administered jointly by the schools of engineering and agriculture. Thirty land-grant colleges and universities offer professional agricultural engineering curriculums, or the equivalent, with 23 institutions conferring the Bachelor of Science in Agricultural Engineering degree, four granting the Bachelor of Science in Engineerng degree or a major in Mechanical Engineering, Civil Engineering, or Electrical Engineering, and three offering the work as a major in agriculture. Three schools offer two curriculums in agricultural engineering; one in agriculture and the other in engineering. Renssalaer resumed the senior thesis as a requirement for graduation in engineering, having discontinued it during two war years. The University of California at Berkeley has surveyed employment histories of its engineering graduates for help in reconstructing its program.

Engineering Societies.—*Who's Who in Engineering* lists 71 national groups as engineering societies. However, only the National Society of Professional Engineers limits its membership to professional engineers. It reports a membership of 13,000 and an expectancy of 25,000 members by the end of 1947. The largest and most important societies, while retaining their own autonomy, are joining forces to study professional problems in two major Councils, The Engineers' Council for Professional Development and Engineers' Joint Council.

Scholarships and Awards.—The George Westinghouse Award in Engineering Education was established in 1946 for the purpose of encouraging outstanding achievement in the teaching of engineering. The award consists of $1,000 and an engraved certificate. The Bausch and Lamb Honorary Science Award Medal and Science Scholarships are examples of recent efforts of industrial companies to stimulate interest in the engineering profession.

JOURNALISM EDUCATION

Enrollments.—*Editors and Publishers* reported in 1946 that the nation's colleges and universities were then training twice as many students for careers in journalism as before the Second World War. In the 52 schools and departments of journalism listed there were 13,874 students—8,641 men and 5,233 women. A pre-enrollment survey indicated an estimated enrollment of 18,000 journalism students in all colleges by 1947. From 50 to 75 per cent hoped to find employment in newspaper departments and about 10 per cent, respectively, in advertising, publicity, public relations, and radio journalism. Approximately 800 were studying press photography. Nearly 80 per cent of the schools reported some facilities for photographic studies, 12 with complete laboratories.

Faculties.—Journalism teaching faculties were doubled, most additional help being provided by visiting instructors from newspapers, magazines, and radio. Newspaper cooperation included "everything from free copies to scholarships and jobs." As a result of this cooperation, faculties believe they are turning out a larger number of graduates with a practical view toward the basic requirements of the profession. The Accrediting Committee of the American Council on Education for Journalism continues its intensive study in an attempt to determine a sound basis for accreditation of schools of journalism. The Committee is attempting to provide for flexibility within individual programs rather than to set up fixed standards. By April 1947, 151 schools had been invited to apply for accreditation, and 43 had replied to questionnaire forms devised to supply the Committee with approximately 40 items of factual data which should reflect the resources available for journalism education. Through the use of a profile, the accrediting group will compare the overall pattern of a particular school with the majority practice. A system of visitation has been set up whereby members of the Committee, regional representatives, lay persons, and specialists in certain aspects of journalism will visit a school including such intangibles in their observations as student morale, teaching effectiveness, and school prestige. First visitations began during the summer of 1947, and the first accredited list will be announced in 1948. Major newspaper associations are cooperating with the project, and a $15,000 Carnegie Fund grant helps to finance it.

Curriculums.—A study of curriculums in 60 small colleges showed that the number of journalism courses varied from none to eleven. The four most commonly offered were, (1) Newswriting and Reporting, (2) Copyreading and Editing, (3) Feature Writing, and (4) Creative Writing. Syracuse University School of Journalism has launched two new specialized graduate curriculums leading to the master's degree for students interested in advanced preparation for public relations and for newspaper editorial work. The Universities of Illinois and Minnesota have created institutes for advanced journalism research.

LEGAL EDUCATION

Enrollment.—*The Statistical Abstract of the United States* reports 32,388 students in law schools for the year 1944-45. Of these 2,001 were women and 613 graduate students. An increasing number of law school graduates are taking graduate work. Graduates of recognized foreign law schools are enrolled for the degree of Master of Laws which is accepted as a basis for admission to the Bar examination.

Curriculums. — The Curriculum Committee of the Association of American Law Schools reported in December 1946 that "the trends in curriculums of the member schools are: first, an increase in course offerings and an overall increase in time requirements for graduation; second, an awareness of the relationship of law to the social sciences; third, a greater emphasis on public law; fourth, where the major revisions have occurred, a reduction or the elimination of electives; and, fifth, the recognition that the summer term has become a part of the regular school year."

Northwestern University has a "group unit plan" with each term considered as a unit with related subjects included. Some schools are adding regular summer terms to their present programs. More emphasis is found in public law, administrative law, international law, and taxation.

Harvard University Law School is now engaged in a survey of its alumni to determine the "branches of law" that are met in actual practice. Curriculum changes in light of the findings are anticipated.

In-Service Education.—In June 1947, Arthur A. Ballantine, president of the Practicing Law Institute, reported that "more than 25,000 members of the Bar continue their professional education through the publications, lecture courses, and correspondence courses conducted by the Practicing Law Institute under the sponsorship of the section on legal education of the American Bar Association. More than 6,700 veterans participated in this program through the G. I. Bill of Rights. More than 30,000 sets of lessons were purchased and more than 12,000 lawyers attended the lecture programs. Correspondence courses covering 20,000 lessons for practicing lawyers have been utilized by more than 2,300 lawyers. Lawyers from 32 states attended the Institute's two-week summer session held in New York City in 1946. A four-week session was held in 1947. Expansion of this program for licensed lawyers is planned under a directive from the House of Delegates of the American Bar Association."

Committee Activities.—The attention of the committees of the Association of American Law Schools has been focused upon standards for legal aid clinics, teaching methods, opposition to lowering the Bar examination requirements for veterans, and to cooperation between the law schools and the Bar. The American Bar Association completed in April arrangements for a three-year survey of the profession of law by a council of the American Bar Association with Arthur T. Vanderbilt, dean of the New York University School of Law, as director. This study of the lawyer in contemporary America will include information as to how lawyers are educated.

MEDICAL EDUCATION

Financial Support.—There are 70 medical schools in the country recognized and approved by the Association of American Medical Colleges. Of these, 42 are maintained solely by income from private endowment, gifts, and tuition fees. Twenty-seven are wholly or partly tax-supported. Total foundation support does not exceed $4,000,000 annually. The total spent by all medical schools, net after balancing gross operations, is about $25,000,000 annually. H. G. Weiskotten reports that 10 of the approved medical colleges contribute less than 50 cents from non-student sources for every dollar paid in tuition by students; 15 additional schools provide less than dollar for dollar; the remainder match each student dollar with one or more derived from endowment, gift, or tax sources. Only 18 schools provide two or more dollars for each student dollar; the average for the country is less than two.

Selection and Admission.—A Committee on Personnel Practices of the Association of American Medical Colleges has been charged with the duty of evaluating existing tests used to determine the fitness of applicants for admission to medical schools and to develop a test valuable to all medical schools. The Carnegie Graduate Record Examination Board gave a test examination for the Association in January 1947 to approximately 14,500 students. Results have been sent to all member medical colleges. The Carnegie Board will hold similar examinations in 1948 and 1949, by which time the Committee will have developed a test of its own. Dewey Stuit, of the psychology department of the State University of Iowa, directs the study. The American Medical Association announced that 60 per cent of the 4,666 students selected to enter medical schools and schools of basic sciences in the United States for 1946 were veterans and that 1,079 remained to be selected at that time.

Curriculums.—A temporary committee of the Council on Medical Education and Hospitals of the American Medical Association was appointed in June 1947, to plan a survey of medical schools. The committee is to make a study of the block plan, overlapping in course offerings, and of practices in integration and correlation. The Committee on Medicine and the Changing Order of the New York Academy of Medicine, consisting of 48 laymen and experts from the fields of medicine, dentistry, and nursing have examined every phase of the current medical situation, including medical education and research. Representatives of 14 medical schools and of the National Research Council met recently with the National Advisory Cancer Council to discuss the place of cancer in the medical school curriculum. In September 1947 the Yale University School of Medicine established a graduate course in hospital administration leading to the master's degree after a minimum training of 21 months. Washington University has announced a similar program. Both are supported by W. K. Kellogg Foundation Grants. Forty-three medical schools have announced the establishment of Medical Reserve Officers' Training Corps programs. The voluntary training consists of one hour of lecture each week. The Army Medical Department's plan for peacetime operations requires that medical Reserve Officers' Training Corps units totaling 8000 students be established and operated at 66 medical schools which are approved by the Council on Medical Education and Hospitals of the American Medical Association. These units should produce about 2,000 first lieutenants for the Medical Reserve Corps annually. The Inter-Departmental Committee, composed of representatives of the War and Navy Departments, Veterans' Administration, and the United States Public Health Service met with the Association of American Medical Colleges in 1947, to plan the establishment of a Medical Film Institute which will serve as a coordinating agency in the development of audiovisual aids which find a common area of acceptance in the curriculums of the medical schools. The combined budget of the groups is in excess of $3,000,000 annually.

Grants, Awards, and Fellowships.—Several medical schools have announced W. K. Kellogg Foundation Grants. More than $500,000 for research in heart disease will go to colleges, hospitals, and students in the United States and Canada from the Life Insurance Medical Research Fund. Listed are 48 separate grants-in-aid. The Women's Medical Association offered a Mary Putnam Jacobi Fellowship of $1,000 for medical research for the year 1947, to be awarded to a woman doctor either American or foreign. Mississippi, Indiana, and Kentucky are making awards to students who will train for practice in rural sections of their states. Charles A. Doan reported that, as of October 1946, only seven colleges had made any of the 23 Undergraduate Research Awards available to them. Cancer research came in for its share of support during 1947, as did infantile paralysis. Several schools reported grants from the United States Public Health Service.

The Committee on Fellowships and Awards of the American College of Physicians awarded five additional research fellowships in medicine for the year beginning July 1, 1947. The extensive library of 22,000 titles of the late Dr. Arnold C. Klebs of Nyon, Switzerland, has been delivered to the Yale Medical library. Dr. Hans Lowenbach of Duke University has returned from occupied Germany, where he gathered manuscripts on medical and related research that had remained unpublished during the war.

Microfilmed, the 25,000 pages of original manuscripts are being catalogued and abstracted for distribution through the Publications Board, Department of Commerce, Washington, D. C.

NURSING EDUCATION

Enrollments and Scope.—Students admitted to state-accredited schools of nursing for 1946 numbered 30,899. There are approximately 1,300 registered schools of nursing ranging in enrollment from 10 to 900. Fifty-three of the 77 schools which are integral parts of a college or university have membership in the Association of Collegiate Schools of Nursing. Thirty-two are members of the National Organization of Public Health Nurses.

Organization and Control.—The Department of Studies of the National League of Nursing Education reports that the organization of 1,214 of the 1,271 state-accredited schools of nursing in the United States is as follows: hospital control, 1,101, or 91 per cent; university or college control 78, or 6 per cent; joint college and hospital control, 8, or less than one per cent; independent control, 13, or 1 per cent, and other types of control, approximately one per cent. Every state, except Nevada, has one or more state-accredited schools of nursing; yet in 15 states no school is organized and controlled by a university or college.

Background Training.—In April, 1947 the Department of Studies revealed that only 11 per cent of all students then in first-year nursing had one or more years of pre-nursing college work. Of 24,900 working for a diploma in 1946, 91 per cent had not gone beyond high school.

Curriculums.—During 1946, 1,527 nurses were working for degrees in 63 schools. Of 1,101 hospital-controlled schools, all except one offered basic professional programs leading to a diploma, the one providing for a combined degree program; 91 per cent had an arrangement with some college or university for a combined program leading to a degree. Some colleges made provisions for dual enrollment in the school of nursing and another school within the institution, granting two degrees upon graduation. New fields are opening up in the profession. Wayne University has established a practical one-year training program for industrial nurses open only to registered nurses. Ohio State University, Catholic University of America, and the Arkansas schools of nursing are offering courses in psychiatric nursing; men are being encouraged to enter this phase of nursing. Since March 1947 the University of Chicago has offered a six-months advanced course for both public health and institutional nurses in obstetric nursing and in nursing care of children. Other new or reconstructed programs include: a five-year program of the Harris College of Nursing in cooperation with Harris Memorial College and Texas Christian College; the University of California, with the organization of a Department of Nursing Education; the University of Minnesota, with an additional four-quarter program leading to a certificate in practical nursing; Western Reserve, with a special curriculum in advanced tuberculosis nursing for Veterans' Administration nurses exclusively; Teachers College, Columbia University, in cooperation with Memorial Hospital, New York, opening a two-semester program for cancer nursing for which scholarships are available; and the Syracuse University Department of Public Health Nursing and Tri-Boro Hospital School of Nursing, New York City Department of Hospitals, offering four courses in tuberculosis nursing for public health nursing supervisors.

Scholarships, Grants, and Fees.—The United States Public Health Service made grants to nine institutions for the preparation of staff personnel for psychiatric nursing and mental hygiene, for strengthening and expanding advanced programs, and for stipends for postgraduate students. Schools of nursing on Long Island, New York, have $15,000 available for scholarships and loans. Boston University, the University of

Minnesota, and the University of Pennsylvania received Kellogg Foundation grants in order to expand the educational opportunities for graduate nurses.

Of 1,152 schools, 69 per cent charge tuition fees for nursing education. Median tuition for courses is $218 including all expenses; fees for nursing education range from $30 to $1,000. Eighteen schools charge more than $600, and nine university-controlled schools charge over $1,000 for tuition.

PHARMACEUTICAL EDUCATION

Supply of Pharmacists.—There are 70 schools of pharmacy in the United States, 67 accredited by the American Association of Colleges of Pharmacy. In some states pharmaceutical education is almost entirely dependent upon student fees and tuition. It appears that there will be little chance of relieving the shortage of registered pharmacists until late in 1950. In the immediate period preceding 1943, approximately 2,300 pharmacists graduated and were licensed for practice, annually; in 1944, 1,100 licenses were issued, and in 1945 only 800. The estimated number of new graduates in 1946 was 500, and in 1947 1,300. For the four-year period from 1943-1947, there is an estimated shortage of 5,500 registered pharmacists. According to the Committee on Limitation of Enrollment of the American Pharmaceutical Association, the number of graduates in pharmacy will be approximately 200 in 1948, 4,500 in 1949, and 5,500 in 1950. The total number of graduates in the three years, 1948 to 1950, inclusive, will reach 12,000, an excess of 5,100 over the three-year average for the immediate pre-war period. While this will not balance the shortage built up previously, continued large enrollments with colleges graduating more than 5,000 pharmacists, annually, after 1950 may result in an oversupply of recruits. The Committee estimated that not more than 3,500 pharmacists will be needed as new registrants each year after 1950, even with expansion of government demand. It recommended immediate planning for more rigid selection for pharmaceutical education.

Curriculums.—Planning for the Pharmaceutical Survey, directed by Edward C. Elliott and financed by the American Foundation for Pharmaceutical Education at the request of the American Association of Colleges of Pharmacy, is still in progress. Their work in 1947 represents the first major step in the formulation of major policies by the profession. In addition, they are working with the Committee on Personnel in efforts to improve the quality and quantity of instruction at the graduate level. The establishment of new schools of pharmacy is being discouraged except where there is real need for them. The committees secured and distributed data on the faculties of colleges of pharmacy covering degrees obtained, provisions for sabbatical leave, and tenure policies. They recommended that at least four persons with doctor's degrees in pharmacy be employed in each school of pharmacy.

Among 45 deans of colleges of pharmacy responding to a questionnaire sent out by the committees in 1947, responses were as follows: 24 reported that they offer graduate instruction leading to advanced degrees; 21 reported no intention of offering graduate instruction leading to the Ph.D. degree within the next five years; and only four intend to initiate graduate programs leading to the master's degree in one or more major fields of pharmacy. The number of schools offering the Ph.D. degree in specific areas are: Pharmacy 3; Pharmaceutical Chemistry 11; Pharmacology 6; and Pharmacognosy 8. The master's degree is offered in the following number of schools in each area: Pharmacy 20; Pharmaceutical Chemistry 23; Pharmacology 15; and Pharmacognosy 14. Only five offer graduate instruction leading to both the Ph.D. and master's degree in all four of the major fields. The number of schools reporting intentions of initiating graduate instruction for advanced degrees in areas not now offered is as follows: Pharmacy, 6;

Pharmaceutical Chemistry, 4; Pharmacology, 4; and Pharmacognosy, 2. The number indicating the intention to offer the master's degree in each area is: Pharmacy, 6; Pharmaceutical Chemistry, 2; Pharmacology, 2; and Pharmacognosy, 3.

Approximately 200 graduate students were enrolled in pharmacy in September, 1946. The trend is for schools which now offer graduate instruction in one or more major fields to broaden their existing facilities to include other fields. It is estimated that schools of pharmacy offering courses toward advanced degrees will be able to accommodate some 265 advanced students under present conditions and approximately 480 graduate students in 1951. The Five-Year Curriculum Committee reports that less than 10 per cent of the deans of schools of pharmacy favor a five-year curriculum effective by 1950 with one year of pre-pharmacy and changes in state laws requiring five years of college work for licensure; less than 25 per cent favor lengthening the training program. An alternative five-year curriculum in pharmacy is announced by Western Reserve University. The new plan permits the acceptance of more students since those in the five-year program do not require the facilities of the School of Pharmacy until two years of pre-pharmacy work are completed.

Awards, Fellowships, and Grants.—In May 1947 the Foundation Board of Grants renewed fellowship awards for nine students engaged in graduate work leading to the Ph.D. degree and allocated 22 new awards to students working for this degree. It also provides $50,000 for awards for the current year and $50,000 for strengthening graduate instruction. Grants will provide needed personnel for college staffs and for research in laboratories of pharmaceutical manufacturers. Twenty-five thousand dollars is provided for undergraduate scholarships. The Women's Auxiliary student loan fund of approximately $4,000 is available to deserving women students of pharmacy.

The American Pharmaceutical Association is planning a Pharmaceutical World Congress for 1952 which will include a discussion of educational problems.

EDUCATION FOR SOCIAL WORK

Enrollments and Scope.—In 1947 the American Association of Schools of Social Work reported 47 member schools, 39 offering a two-year program leading to a professional master's degree while eight offer the first year of a two-year program. Fifteen are affiliated with state or territorial universities or colleges, seven are under religious auspices, three are in Canada, one in Hawaii, and two, Atlanta and Howard, are for Negro students. Tuition varies from $110 to $600 a year. The number of full-time students specializing in social work increased from 4,715 in 1944 to 5,011 in 1945. During the fall quarter of 1946 only eight schools reported having more than 100 full-time students each, the enrollment at any one time being affected by the availability of field-work facilities and the pressure of employment opportunities.

Curriculums.—In 1946 the American Association of Schools of Social Work and the National Association of Schools of Social Administration accepted a plan for the establishment of a National Council on Education for Social Work (1) to establish a temporary commission on education for social work, representative of the fields of education, practice, and related interests, to make a long-range study of the content and methods of graduate and undergraduate education for social work and the extent to which each prepares for the needs of the field, (2) to agree upon the content of education for social work for accrediting purposes, (3) to establish machinery for continuous collection of data on personnel needs in social work and on the quantity and distribution of educational facilities, and (4) to provide machinery for the discussion of common educational problems. Among the factors affecting the curriculums in social work are those related to emphasis on mental hygiene, psychiatry and psychoanalysis, public health and medicine; labor; services to a displaced population in a post-war economy; protective programs of social security and social insurance; and intercultural and interracial progress. There is a trend toward emphasizing social work as a service to people in every social and economic group rather than to such specific ones as "the aged" and "the delinquent." A need is expressed for the education of persons to teach in schools of social work. The doctorate in this field has been established in a few schools. A graduate school of Social Work was to be established at the University of Alabama in 1947 with adequate clinical facilities available through the medical college.

Research, Scholarships, and Fellowships.—The American Foundations for Social Welfare lists some 500 American foundations which conduct or make grants for research in fields of work, the most important among them being the Russell Sage Foundation and the Social Science Research Council. The 1947 *Social Work Yearbook* reports a total of 1,431 students receiving scholarship assistance, including 83 on work-study fellowships, 287 on educational leave fellowships, and 499 on recruiting fellowships.

TEACHER EDUCATION

Shortage of Teachers.—The deep concern for securing a sufficient number of adequately prepared teachers to meet the needs of the schools, which had arisen in previous years, continued in 1947. Virtually all groups engaged in teacher education gave the matter of teacher shortage major attention. The number of emergency certificates issued in 1945-46 was 108,932 as compared with 2,305 in 1940-41. Benjamin Fine estimated that this number had increased to 125,000 for the year 1946-47, or one for every seventh teacher. He further reported that in 1947, 60,000 teachers had a high school education or less, and that the average teacher in the United States in 1947 had one year less of education than did the average teacher in 1939.

Although enrollments in teachers colleges increased 13 per cent in the autumn of 1946, large proportions of students enrolling in teachers colleges were in non-teaching curriculums, and a significant number of graduates of teaching curriculums went into non-teaching vocations. The proportion of all college students going into teacher education was 7 per cent in 1947, as compared with 22 per cent in 1920. Only 20,000 of the million veterans enrolled in higher education institutions in 1946-47 were in teachers colleges.

In a survey of teacher education enrollments in the 20 states covered by the North Central Association of Colleges and Secondary Schools, Ray Maul found that the production of elementary school teachers in 1947 was less than half as great as in 1941; in the high school field the proportion was 75 per cent. He reported practically no gain in the production of elementary school teachers and in certain high school areas, whereas in other high school teaching fields the shortage of candidates holding standard certificates is almost over. He estimated that there will be a continuing shortage of college teachers in the next several years, so great that standards in the employment of college teachers will be lowered. The number of elementary school teachers employed in the United States probably will increase almost one-third within the next five or six years owing to the great increases in the number of births occurring during the years subsequent to 1940. This situation will further accentuate the shortage of elementary school teachers.

The United States Office of Education has prepared a recruiting information manual for prospective teachers. The National Education Association has given much effort to attacking the problem of getting more and better qualified teachers in the schools. This Association recommends scholarships for teacher education, direct attack upon reducing the number of emergency certificates as rapidly as possible, the promotion of in-service training, particularly of undertrained teachers, and improvement of conditions of teaching, especially of salaries and sick leave provisions.

Improvement of Curriculum.—A study of general education in the four-year curriculums for elementary school teachers has been completed by Warren Lovinger under the sponsorship of the Committee on Standards and Surveys of the American Association of Teachers Colleges. It was found that the average general education requirement in the 127 teachers colleges studied was 48 semester hours. The Committee on Student Teaching of the Association is making an extensive detailed questionnaire study of student teaching policies and practice. The Committee on Standards and Surveys of the Association is giving attention to the following areas; applied economics, work experience, general education, conservation education, international education, health education, religious practices in teacher education, library standards, standards for laboratories and shops, student personnel services, scholarships, and salaries and promotions.

The Council on Cooperation in Teacher Education.—The Council on Cooperation in Teacher Education, an organization whose membership consists of representatives from a large number of organizations interested in teacher education, has shown much interest in international aspects of teacher education during the past year. It sponsored the National Clinic on Teacher Education held in Georgia in late 1946 with the aid of a contribution of $6,500 from the Julius Rosenwald Fund. This clinic, which lasted for a week, was an effort to study and evaluate, cooperatively, a number of phases of the teacher education program in Georgia. Participants included 170 persons from 34 outside states and 100 Georgians.

VETERINARY MEDICAL EDUCATION

Employment.—There are approximately 12,000 veterinarians in the United States, nearly 60 per cent of whom engage in private practice. Approximately 1300 are employed by the United States Department of Agriculture.

Curriculums.—Curriculums which meet the American Veterinary Medical Association standards are offered by 10 schools in the United States and 2 in Canada. They are supported by public monies and most are connected with state universities or technical colleges. Courses are not standardized but certain minimum requirements are set by the Association. Some new schools are requiring two years of pre-veterinary study.

Fellowships and Other Research Opportunities.—The Schenley Research Institute established post-doctorate research fellowships totaling $110,000 at the University of Wisconsin for the study of factors affecting the production of antibiotics and the relation of veterinary services to public health. The Research Fund being raised by the Special Committee on Financing Research of the American Veterinary Medical Association, to advance knowledge in both basic and applied aspects of veterinary science, will establish fellowships in the United States and Canada which will lead to teaching research. Stipends will range from $150 a month, upwards. A graduate teaching and research center was authorized in August 1947 for the College of Veterinary Medicine of the University of Illinois. It has been written into Army Regulation No. 40-410 that the Army Institute of Pathology is open to veterinary officers as well as medical and dental personnel.

ADULT EDUCATION

By J. O. Keller and H. G. Pyle
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GENERAL

The adult education program continued its growth, making wide gains during 1947. It persists in being characterized by a great diversity of aims, programs and objectives as well as a lack of integration. Standardization and a measure of program unity may come if and when public funds support the movement, or when further professionalizing of the adult educator takes place, but efforts in this direction can tend to make this movement sterile. Professional organizations in adult education took cognizance of the need for definition of policies, principles, and practices when a joint committee composed of representatives of five national organizations studied and reported on the "chief problems confronting adult education" (*Adult Education Journal,* April 1947, p. 85).

Many conferences were held during the year to scrutinize the movement. The National University Extension Association met immediately preceding its annual conference to study the aims and objectives of college and university extension. The Department of Adult Education (National Education Association) called a first annual meeting of city directors of adult education at Battle Creek, Mich., a part of which session was held jointly with the second annual conference of state directors of adult education. The American Association for Adult Education held its 22nd annual meeting at West Point, central theme of which was the problems of adult education within the community.

Community aspects of adult education were further emphasized by a National Conference on the Community held later at West Point in October. This group, called together by the National Planning Association, was chiefly interested in integrated services to over-all community organizations. A follow-up conference in Washington in November considered a permanent organization of agencies concerned with adult education and over-all community development. In New York State at Manlius, a ten-day Institute on Community Leadership took place and a great many states held similar study projects on this aspect of adult education.

The California State Education Department materially expanded its in-service training program for teachers and leaders of adults. New York State continued its seven-year program of try-out and demonstration projects, promotion, and research in adult education with a $120,000 legislative grant for an expanded bureau of adult education with 15 staff members. Baltimore, under National Education Association auspices, held a unique work-survey conference designed to evaluate the total community program. Conference planning and procedure itself was subjected to intensive study at a three-weeks national workshop or laboratory in group development held at Bethel, Me.

Schools of education scheduled more professional training in adult education. In 1945, 20 summer schools gave 30 courses; in 1947, 34 summer schools gave 70 courses. California agencies of adult education held a two-weeks community leadership training workshop in Santa Barbara.

Many adult education programs during the year were designed to promote international and intercultural understanding. The broader economic and social objectives of UNESCO must lean heavily on adult education agencies for their achievement. In fact, the U. S. National Commission for UNESCO recommended a "conference of experts on the contribution of adult education to peace and security to be held by UNESCO in 1948."

At least two recent studies or polls, one nationwide, show approximately one adult in every three continually instructed in one project or another in organized adult education. The estimate includes education for veterans, workers, rural population, and extension activities of colleges and universities. Analysis shows adults seeking continuing education at present for improvement of job status, to increase status by self-improvement, training in family life, training in leisure time and recreation, and education in the social sciences. Interest manifested in community welfare is motivated by realization that good personalities, good jobs, good families, depend inevitably on healthy communities. Malcolm MacLean (*Survey Graphic,* November 1947, Page 606) finds these significant current developments bearing on the processes of adult education: (1) research in public opinion is developing techniques to tap swiftly community thinking and feeling. In fact, experiments give reason to believe that we may learn how adults "think and feel as they do, whether opinions are shaped by emotion or reason, by knowledge or ignorance"; (2) there is widespread research into the effectiveness of mass media of communication in shaping opinion; and (3) intensive studies are going on, notably in Massachusetts Institute of Technology, as to what happens to individuals in classes, committees, conferences, forums, and the like.

Possible blocks to the extension of these developments MacLean lists as: (1) attempts at thought control or to limit freedom of discussion; (2) lack of funds for research into the processes of adult education; (3) lack of competent leaders and teachers; (4) lack of knowledge of the adult learning process, (yet, a century ago there were 800 adults to every 1,000 persons under 21 years of age; today, we have 2,000 adults to every 1,000 minors); (5) lack of buildings and equipment; (6) too much of the wrong kind of materials; and (7) lack of finances. Growth of adult education during 1947 could be said to be characterized by all of these aspects.

MUSEUMS AND SCIENTIFIC ORGANIZATIONS

These agencies found it imperative to demonstrate the importance of the educational facilities they have at their command to the community. If for no other reason, community services of one type or another become necessary in order to bring financial support to museums, art galleries, and other depositories of art. In line with this principle, many activities such as the following took place in 1947.

The Addison Gallery of American Art at Phillips Andover Academy installed exhibits of historical and modern fabrics in four textile mills in the Andover (Mass.) area. The division of adult education of the Buffalo Museum of Science offered a program of 39 courses for adults in its spring semester cosponsored by the Board of Education. This museum also carried on a radio program of museum highlights to stimulate popular interest in its collection. Other museums arranging such broadcasts included the City Art Museum of St. Louis, Cleveland Health Museum, Detroit Historical Society, Franklin Institute (Phila.), National Gallery of Art (Washington, D. C.), New York Botanical Gardens, Virginia Museum of Fine Arts, Chicago Historical Society, Children's Museum (Washington, D. C.), Columbus Gallery of Fine Arts cooperating with the Ohio State University, Illinois Historical Society, Missouri Historical Society, Oglebay Institute (Wheeling, W. Va.).

The National Gallery of Art inaugurated a series of film and music lectures. A costume institute was organized by the Metropolitan Museum of Art which illustrated three centuries of fashions.

At the Philadelphia meeting of UNESCO in March, a sectional meeting dealing with the work of museums took place and the sub-committee on libraries and museums of UNESCO reported in Paris in December recommending establishment of formal relations with the new International Council of Museums.

The Rochester Museum of Arts and Sciences offered a course in sources of local history for amateur historians. The Art Alliance of Philadelphia arranged for musical recitals. The Washington Children's Museum put a Trailer Coach International Exhibit on the road for a first tour through eight states. The Boston Museum of Fine Arts presented a concert and lecture series correlating music and art. The Dayton Art Institute cooperated with the Chamber of Commerce in sponsoring a series of free Sunday musicales. The Museum of New Mexico arranged a concert tour for the state.

REGIONAL, STATE, AND LOCAL COUNCILS

Community programs of adult education are probably best promoted through regional, state, and local councils. Their endeavor can bring cross-sectional action representing the interests and activities of a variety of agencies and functional groups. All of these agencies continue to indicate increasing need for leaders trained in modern adult education methods and skills in order effectively to equip people for jobs in the community. Probably the best directory of state and local councils is to be found in the February issue of the *Intercouncil Newsletter* of the American Association for Adult Education in which approximately half of the 48 states are represented.

The sixth annual southeastern regional conference on adult education devoted its program to the theme, "Progress in Adult Education in the South." In a sizable catalog entitled "Educational Opportunities of Greater Boston for Adults," one can learn of such opportunities in that area. The Council of Greater Boston continues its study of adult education needs and trends. The Des Moines Adult Education Council has completed a survey of adult education activities. The Baltimore Adult Activities Council has developed a number of local neighborhood councils and the same development has taken place in Philadelphia. The Adult Education Council of Denver held a Mountain Plains Conference in the fall. A Missouri Valley Conference on adult education was held in Omaha (Neb.). The New York City Adult Education Council published an interesting report on the story of a discussion program which involved veterans and citizens.

A National Conference on Adult Education and the Negro was held in Atlantic City in March. The California University Extension Division conducted workshops on community leadership training and on counselling older-aged adults. The American Association for Adult Education set a committee to work on principles of community organization. Philadelphia started its seventh successful year for its adult education school, the "Junto." The Adult Education Council of Chicago had a report of its program policy committee recommending activities for the atomic age; the narrowing of the gap between the council and practitioners; a study of Chicago's needs; and a factual study of programs now carried on to meet these needs.

LIBRARY SERVICE

The library, as an active educational agency of the community, has broadened its function to include a sponsorship of adult study groups and activities which may or may not involve the use of the printed page such as lectures, film forums, concerts, and informal discussions. The adult education board of the American Library Association indicates a two-fold program carried on in 1947. One is concerned with the development of resources for aids to community groups with materials, planning and consultation assistance. The second is associated with programs initiated and developed by libraries themselves. (See "Libraries," in this volume.)

HEALTH, SAFETY, AND PUBLIC WELFARE

Many organizations work to educate for better health, safety, and public welfare. Typical of the activities of these organizations is the following record of service in 1947.

The National Recreation Association serving over 6,000 communities a year, reports a rapid increase in interest and activity on the part of state government agencies in providing recreation services. Thirty-nine states in all have provided some type of state service to communities on their local recreation problems. These services range from fulltime field consultation service to help on specific activities such as music, drama, arts and crafts. In the field of rural and small town recreation, at least one state agricultural extension worker in each of 33 states devoted time to help train local recreational leaders. In 18 states, there were fulltime recreation specialists.

Greater concern for the problem of recreation for older adults was also in evidence during the year. Youth center activities were developed with youth having a greater part in the planning and conducting of activities. This trend has been given added impetus, with the return of veterans to their home neighborhoods, as a result of their exposure to these activities in the armed forces. The Association also reports that, in 1947, there were greater local provisions for physical activities such as instrumental and vocal music, dramatics, arts, and crafts, hobbies, interest in programs and projects such as folk festivals which promoted intercultural understanding.

The adult education activities of the National Safety Council were impressive. That agency spearheads the accident prevention program in the United States and its 35th National Safety Congress held in Chicago brought together 10,000 persons in the 140 sessions devoted to industrial, traffic, farm, home, and other phases of safety.

A National Farm Safety Week was proclaimed by President Truman in July which mobilized state farm agencies, the farm press, radio networks, and others for an attack on this problem.

The contribution of the American Red Cross to adult education is chiefly in the field of health and safety. Some 31,600 instructors issued 346,871 first aid certificates during the year. In the same time, 470,390 water safety certificates were issued, and 31,723 persons completed accident prevention courses. The Red Cross is developing new teaching materials and utilizes a wide variety of publicity and other media. Leaflets dealing with nutrition and special instruction to volunteers working in hospitals are other phases of the program of this agency.

The U. S. Children's Bureau of the Federal Security Agency promotes parent education by cooperating with other national and state agencies and issuing booklets for distribution. There were 1,800,000 copies of the pamphlet "Infant Care" distributed in 1947. Many other bulletins are issued dealing with child and family welfare. The Children's Bureau and the Public Health Service analyzed data gathered by 2,000 persons on child health services in 1947 in preparation for its presentation before a meeting of the American Academy of Pediatrics in December. The Children's Bureau in 1947 issued a number of publications of special interest to groups which planned community programs for children and youth.

INDUSTRIAL RELATIONS AND LABOR EDUCATION

The universities offering extension work in the field of industrial relations such as Cornell, Illinois, Penn State, Wisconsin, California, Minnesota, experienced greater demands for their programs. They experimented with the possibilities of having representatives of both groups meet jointly and compared results with the arrangement under which representatives of labor and of management met in separate group sessions. The new state-created institute of management and labor relations at Rutgers University got under way with forums, institutes, film forums and group sessions arranged for labor, management and public groups in the state.

Great need continues to exist for leadership training projects in the field of labor education and certain universities again discussed plans for such courses. The Pennsylvania State College conducted a series of one-week labor institutes for the United Steelworkers of America for the second year, and similar institutes were held at the universities of New Hampshire, Michigan, Illinois, Indiana, Wisconsin, California, and Kansas, and at Antioch College.

The educational department of the Ladies Garment Workers Union issued a biennial report showing almost 9,000 enrollees in 300 classes and groups for 1945-46. In addition to classroom events, innumerable cultural and recreational projects have been in operation reflecting the continued trend away from formalized education toward varied activities which escape statistical record.

Six educational institutions in the eastern part of the United States cooperated in the summer with the Textile Workers Union (C.I.O.) in making facilities available for eight training institutes for local plant leaders. Harvard University had a registration of ten selected labor fellows for a special nine-months course.

The American Labor Education Service cooperated with universities in workers education and carried on leadership training projects and services attended by teachers, librarians, group workers and graduate students. An experimental program was continued in the field of group tensions and intolerance. Counseling and advisory services were given to educational directors of unions with bibliographical services and other helpful materials provided. A.L.E.S. also carried on its eighth annual Midwest Workers' Education Conference; its second Northwest Farmers and Workers Education Conference; and its Summer School for Office Workers at Lake Forest (Ill.).

The Workers Education Bureau of America carried on a broad program of labor institutes and conferences in cooperation with state federations of labor, city central bodies, and state universities and other educational institutions. Among institutes held during the year were those in Colorado, New Jersey, Massachusetts, Montana, New York City, Cornell, Ohio, Kansas, and elsewhere. Several publications were issued by the Bureau during the year in addition to its monthly *News Letter*.

The Division of Labor Standards of the Department of Labor sponsored a labor education conference which dealt largely with the extent and status of university labor education programs throughout the country. Operations of industrial relations centers were considered as was also the work of various extension services and discussion concerned itself with administration of these programs, course content, teaching staff, materials, and other resources.

RELIGIOUS EDUCATION

Some adult educators believe that areas currently important for the church are racial tolerance, housing, labor, and recreation as it relates to the juvenile delinquent problem. They believe furthermore that the churches must help in creating an awareness to social problems in the community and that churches must work cooperatively with other local organizations for effective adult education programs.

The Federal Council of Churches of Christ in America is an agency of adult education but actual organization of educational programs rests with the denominations working with the International Council of Religious Education. Three items of special significance in the work of the Council in 1947 were: (1) extended program development in the field of Christian family education; (2) unification of elective study planning with studies related to every phase of life in which adults are engaged; and (3) sponsorship of a national conference on the community and religious education.

The work of one other representative agency in this field might also be outlined. The National Catholic Welfare Conference notes that a growing consciousness of each individual's responsibility in social and political life has marked the adult education program of the Conference during 1947. Conferences on industrial problems, on family life, on youth; institutes on social action and on the United Nations; seminars on the problems of minority groups; and established radio programs have been sponsored by the various departments and bureaus of the Conference. (See "The Roman Catholic Church," in this volume.)

MEN'S AND WOMEN'S CIVIC AND SOCIAL CLUBS

Rotary, Kiwanis, and the Lions Clubs plan their programs for business and professional men. The 65-year old American Association of University Women now numbers over 1,000 branches with a total membership of 90,000 college alumnae. Through its study-action and other programs, it works in connection with legislation affecting women, on equal opportunities for women, on representation of women in public service, for better schools, for the better understanding of international relations, and similar problems of social worth. In 1947, the organization worked for promotion of UNESCO and for the Commission for International Educational Reconstruction.

The Congress of Parents and Teachers carried on in behalf of the welfare of the nation's schools, each unit composed of both men and women being active in their own individual localities. A great many agencies also worked in behalf of family life education, including the National Conference on Family Relations.

The 72,000 members of the League of Women Voters worked in 550 communities to promote political responsibility through informed and active participation of citizens in government. Its program in 1947 included providing of information, building public opinion, and supporting legislation. The General Federation of Women's Clubs with its membership of 3,000,000 women and 16,500 clubs furthered its objectives of promoting education, philanthropy, public welfare, moral values, civics, and fine arts.

UNIVERSITY EXTENSION

The Carnegie Corporation, in 1947, gave the University of Minnesota $5,000 for the support of summer institutes for extension workers for a three-year period to be carried on under the auspices of the National University Extension Association. The year's institute dealt with extension teaching methods; institutes and short courses; and use of audio-visual materials in adult education. This effort represents a significant step in leadership training. Generally, college and university extension programs recorded large advances, particularly in projects designed to meet the demands of service personnel for higher learning. The Veterans Administration late in the year announced that 60 colleges and universities spread from Florida to Washington State had contracted with it to offer correspondence courses under the G. I. Bill. The following projects illustrate the diversity of college and university offerings.

The division of adult education and extension services of the University of Washington reports its forum program so successful as to have become an integral part of the cultural life of many communities. An office of lectures and concerts is headed by a full-time administrator. The University in cooperation with the State College and General Electric Company, is offering a credit extension class program in Richland (Wash.), one of the important centers in the Atomic Energy Commission's program.

The University of North Carolina operates 12 college centers at the first-year level for both veterans and non-veterans. The extension program is outlined in "University Extension in Action" by the director of the division, published in 1946. A Communications Center established at the University, to serve the state, contemplates additions in the form of television apparatus and an FM radio station. The extension division at the University of Connecticut sees an enlarged demand for courses in effective living, community leadership and in-service growth courses for teachers. The University of Wisconsin notes two developments: (1) an expanded program over the state in workers education in 12 cities; and (2) an intensification of general programs in the adult education field—programs involving institutes, lecture series, and short courses.

The Pennsylvania State College extension service leased from Swarthmore College the former administration building of the Mary Lyon School. It houses a center for 275 college freshmen, a daytime and evening technical institute, a guidance and counseling center, and special institutes and short courses for the Philadelphia area. This center is in addition to several other centers where the first and second years of college instruction are offered, and to 15 technical institute centers where non-credit evening instruction of college grade is also available.

The public service division of Montana State University is a unit coordinating all off-campus activities such as adult education, correspondence study, radio, news service, publications and alumni relations. The program featured literary study groups, forums, a course in conservation of human and natural resources, a cooperative School of Public Administration for the Forest Service, a musical concert tour, and a project working toward joint action for community betterment. University extension at the University of Kansas featured short courses for court reporters, bank management, insurance underwriters, and Steelworkers. Effort specifically is made to tie in radio, correspondence instruction and visual aids with classes, institutes, conferences and workshops. Columbia University established a school of general studies separate from its institute of arts and sciences.

Harvard University, acting through its commission on extension courses, sponsored 29 courses in 1947. Princeton University established a modest program of extension courses during the year, and Johns Hopkins University established its McCoy College for adult instruction. The extension service of the University of Alabama presents an imposing record of activities including the following: some 12 seminars throughout the state on current affairs; encouragement of communities to establish and maintain public forums; assisting communities in the state to carry on industrial surveys for community development; the carrying on of a series of short courses and institutes; maintaining regular educational radio programs; an educational materials loan service; institutes on home and family life in six or eight communities; an advisory and training service for newspaper publishers; and four resident centers of instruction.

The extension division of Ohio University notes especially a four-year apprentice program in engineering drafting established for an industrial concern and the participation of the institution in an experimental state program of health education subsidized by a grant from the Kellogg Foundation. The division of academic extension at the University of Delaware this year carried on 40 off-campus courses chiefly in the city of Wilmington.

The extension division at the University of Tennessee notes as one of the most significant tendencies of the year the interest in adult forums on international affairs. Twenty-five hundred persons attended eight leadership conferences on the subject "Facing Atomic Energy." Seventy-five other forum sessions developed from this initial project. There is also increased demand for college and non-college credit training with five new university centers established in the state.

The extension division of the University of Arizona notes 100 per cent increase in students in both class and correspondence instruction since 1941-42. The extension division of the University of Nebraska reports a second institute on small community life. Interest in art throughout the state increased and a labor college is planned for early 1948.

North Dakota Agricultural College marks an increased call for motion pictures by churches and adult groups with greater enrollment in correspondence courses for veterans and teachers. The extension division of the University of Hawaii notes that civilian registrations for its activities are as large as the very sizable registration of servicemen during the war. A special course on Russia features lectures, discussions and Soviet-made films and attracts much interest. An extension college offering day credit courses has also been established. The extension division at the University of Iowa has an enlarged program of professional refresher short courses. The conferences on the campus for many adult groups, curtailed during the war, were started again in 1947.

The extension division of the University of Texas notes as the most significant development there the fact that the American Oil Drillers Association granted it a fund to extend into other oil producing states their training program in the chemistry of oil drilling muds; also the American Petroleum Institute granted a fund to make a survey of the training program in the oil refining division of the American Petroleum Institute.

The university extension service at the University of California features a highly specialized organization set up with close liaison with many areas of instruction. A program of continuing education for the California Bar Association was established in 1947. An adult education specialist was appointed to the staff to give sole attention to the improvement of quality of the various instruction activities. Close cooperation is maintained with public school programs of adult education and also with the public junior colleges of the state, with the University frequently arranging extension courses for the third year of college level work.

The division of general college extension at Rhode Island State College shows an increasing interest in adult education evidenced not only by higher enrollments, but by support of the extension program by business, professional and labor groups in the state. The general extension division at the University of Florida conducted eight child guidance and counseling institutes affecting more than 100 Florida high schools. The extension division of the University of West Virginia found increased requests for in-service training programs for teachers. The department of educational field services at the University of Idaho represents a new consolidation of field services of the University. The University of Massachusetts organized an extension service in 1947 to make available to adults the resources of that institution.

The extension service of the University of Michigan finds great interest in classes dealing with human relationships—in the home, on the job, and in the community. The University cooperated with Wayne University in conducting mental hygiene courses for teachers and administrators of elementary schools with 750 persons registered for the first section. Great interest was also manifested in vocational subjects for persons in semi-professional life. Representatives of the Public Health Service worked under university sponsorship with labor groups in the industrial areas about Detroit.

The general extension division of the University of Minnesota finds its center for continuation study being something of a graduate school of adult education presenting non-credit courses for many types of professional workers. During 1947, the center was in operation 891 class days indicating three groups present on the campus each working day. The class program features courses in fashion illustration, current reading and religious classics with one special course dealing with intercultural relations.

The university college of the University of Chicago has had considerable success with its great-books seminars; in fact, they have been used as patterns for similar programs throughout the country. The Great-Books Foundation was organized to undertake this form of adult education separately. Seminars on world politics sponsored jointly by university college and by the Chicago Council on Foreign Relations represented an entirely new adult education activity. Of further significance was an attempt to develop more effective union—university relations with two members of the staff developing programs and projects helpful to unions as a part of the activity of the industrial relations center. Effective discussion guides were developed particularly for the Steelworkers Union.

MASS EDUCATION

C. W. Darden, on the occasion of his inauguration as president of the University of Virginia in October, said: "The most pressing question, however, is what is to be done for the 75% of the high school graduates, to whom I referred earlier, who go from high school not to college but to work. Admittedly there are among them many of demonstrated capacity and of known ambition. They go to work in most cases because they must support themselves and in many instances help support families. Yet, with a free ballot, there rests within their hands the political control of this country. It is reasonable to assume that, given the opportunity, they can supply a larger number of able citizens than are now supplied by the colleges and the universities." The president of the Association for Adult Education, in his presidential address at the annual conference, also pointed out that adult education can not stop short of mass education and that social education must be its working goal.

These statements bear on the influence, in adult education, of mass media such as the press, radio and motion pictures. Is it to some extent a force which tends to destroy social and cultural illiteracy as well as to entertain? It should be appreciated that a large part of the younger population inducted into war service was not mature to the point where it was informed on the very issues for which the men were asked to risk their lives. Does there now exist a social maturity which would help to win and conserve the peace? Another aspect is that mass communication media have multiplied the number and range of facts placed before an individual and the question arises as to the extent to which he can absorb and interpret them. Many educators currently believe that the press, screen and radio have a responsibility for turning these instruments of adult education to making adults adult-minded, rather than keeping a substantial portion of the population in a state of arrested adolescence.

Outstanding programs in the public interest carried by the Mutual Broadcasting System included "American Forum of the Air," "Meet the Press," "Family Theater," "The Veteran Wants to Know," and some few musical programs. The Columbia Broadcasting System carried on some outstanding educational projects. Its "Invitation to Learning" programs which included discussions of significant books; its splendid "American School of the Air," now in its 18th year; its re-creation of major historical events, and others, tended to make its efforts in this respect noteworthy. The National Broadcasting Company established a public affairs board and reorganized its department of public affairs and education.

Two organizations stand out in the promotion of utilization of educational and documentary films. The Educational Film Library association organized in 1943 now has an institutional membership of over 300. The conference held by this group in cooperation with the Institute for Education by Radio in Columbus in April drew an attendance of over 200. The agency is an official member of the National Commission to UNESCO.

A second organization is the Film Council of America, which is an outgrowth of the National 16mm Advisory Committee of the war period. This committee and Council which grew out of it, being formally organized in 1946-47, is an agency formed by seven constituent members: the Allied Non-Theatrical Film Association; American Library Association; Educational Film Library Association; National Association of Visual Education Dealers; National Education Association (DAVI); National University Extension Association; and the Visual Equipment Manufacturers Council. The Film Council is a national organization which promotes local film councils in communities of 5000 or over. At present there are approximately 40 local field councils and the goal for the coming year has been set at 350.

The American Association for Adult Education is also active in the film field with its *Film Forum Review* which is designed to further the use of motion pictures in free discussion.

Late in the year the Navy established a research project at The Pennsylvania State College dealing with the scientific development and effective use of sound motion pictures as teaching media. The two-year project is designed particularly to investigate the problem of effective educational films and to determine what subject matters and themes can be most effectively presented by means of sound films. The speed of learning and the amount of learning which takes place will also be investigated.

PROFESSIONAL ORGANIZATIONS

Best known professional organizations in the field of adult education are the National University Extension Association, American Association for Adult Education, and the Department of Adult Education (N.E.A.). Those interested in examining developments in adult education more intensively or in finding a listing of current publications in the field should turn to the *Adult Education Journal* published by the A.A.A.E. or to the *Adult Education Bulletin* of the N.E.A. Department.

The American Association during 1947 notes as its most important activities: (1) the work of its Committee on Community Organization for Adult Education in preparing some 30 case histories of such activity in 15 states; (2) sponsorship of the *Handbook of Adult Education* to be published in 1948; (3) the sponsorship of the Commission on Motion Pictures in Adult Education; and (4) cooperation with the United States Commission for UNESCO in the collection of information about adult education activities in the United States. The N.E.A. Department is pushing forward in these areas: (1) experimental work in group dynamics and discussion techniques; (2) experiments in planning and conducting conferences, institutes and workshops; (3) encouragement of leadership training programs for lay and professional community leaders; and (4) development of cooperation among regional groups. Its most successful venture in 1947 was the Bethel (Maine) Laboratory on Group Development.

The National University Extension Association is the national agency which represents the adult education activities of colleges and universities. It publishes a *Monthly Bulletin*. U. S. Commissioner of Education Studebaker points out these other developments: (1) the appointment of a specialist in his office in general adult and post high school education; (2) 50 research projects in the field dealing wholly or in part with adult education, but primarily in the vocational field; and (3) continuation of a project on adult education for illiterate Negroes carried on in cooperation with several other organizations and designed to prepare 150 teachers. He notes also that thirteen states, Puerto Rico and Hawaii now have full time directors of adult education and nine more have part-time directors. The American Council of Education is likewise interested in adult education through its committee network which covers the field of education generally.

NEGRO EDUCATION

By William Anthony Aery
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GENERAL

Negro education during 1947 centered very largely around the inequalities that have characterized dual school systems in 17 southern states and the District of Columbia, and especially in higher education, including graduate and professional education of qualified Negro men and women. Negro leaders emphasize the twofold idea that all men and women should have educational opportunities in proportion to their mental capacity and that among all groups, despite their ethnic origin, there are to be found potential scholars and/or professional teachers, doctors, dentists, lawyers, engineers, and business men. They carried on a vigorous publicity campaign to acquaint the American people with the evidence of the relative backward condition of Negro education from the kindergarten to the professional level, in spite of what appear to be increasingly large financial outlays. The *Survey Graphic* (Jan.) and the *Journal of Negro Education* (Summer) gave detailed information concerning the educational limitation which 14,000,000 American Negroes face on account of widespread and growing segregation. Liberal white leaders, North and South, joined with Negro leaders in promoting better race relations with a view to the improvement of all types of Negro education and the early supply of some 42,000 more Negro teachers, as well as the adequate financial public support of Negro higher education at the graduate and professional levels.

ECONOMICS AND NEGRO EDUCATION

Economics is one of the great foundation stones upon which Negro educational progress must rest, yet there has been little research in the relation of economics to the vast American Negro population, either by whites or Negroes.

Dr. Robert C. Weaver, director of the community services division, American Council on Race Relations (Chicago), presented a comprehensive "Program of Research in Race Relations" (*Journal of Negro Education,* Spring) which emphasized the value of economic research. Some problems worthy of study follow: changes in racial occupational patterns in Negro industrial employment; labor displacement due to mechanization of southern agriculture; place of Negro worker in industrial ghost towns; experiences of Negroes in industrial unions; influence of railroad brotherhoods on Negro employment; economic costs of segregation; Negro occupancy and property values; costs of race restrictive housing; cost of house ownership for Negroes; cost of medical care to Negroes; and administration of social legislation.

The social science departments at the University of Chicago and Fisk University (Nashville, Tenn.) have stimulated study in the field of sociology and economics as they relate to the Negro minority group, according to Dr. Weaver, but today there is need for more workers and more funds with which to carry forward the program that he has outlined.

The University of North Carolina *News Letter* (Mar. 26, 1947) presented the following information, compiled by the National Commission for the Defense of Democracy through Education:

Ten highest states in education were Utah, California, Nevada, Washington, Wyoming, Oregon, Idaho, Massachusetts, Colorado, and Maine. Ten lowest states were Kentucky, Tennessee, Arkansas, Virginia, Mississippi, North Carolina, Alabama, Georgia, Louisiana, and South Carolina.

	Averages Ten Highest States	Averages Ten Lowest States
1. Median number years of schooling completed	9.8	7.5
2. Yearly per-capita income	$620	$309
3. Yearly per-capita retail sales	$396	$182

From 1940 to 1945 in North Carolina, there was an increase in farms operated by Negroes, whereas prior to 1940 Negro farmers had been on the decrease—from 60,268 to 74,273. There was a similar trend among Negro tenants—from 41,994 to 54,414. This increase was largely in the profitable tobacco region of eastern North Carolina. From 1930 to 1940 practically every county in North Carolina had lost Negro tenants—a net loss of 26.5 per cent, while half of the counties gained and half lost white tenants. These figures presented by S. H. Hobbs, Jr. (University of North Carolina *News Letter*, May 7) indicate that Negro rural education has become an even more serious problem for North Carolina.

Basically, economics in the South, as well as elsewhere, is so closely related to agriculture that it is most important for Negroes everywhere to thrive on the farm, if Negro education is to be improved appreciably. Effort must be made wherever there are masses of Negroes to improve their economic status.

PUBLIC-SCHOOL EDUCATION—PROBLEM OF NUMBERS

The seriousness of the problem of public-school education for Negroes lies partly in the vast numbers of pupils that must be handled. The enrollment of Negro pupils in elementary grades for the school year 1943-44 (U. S. Office of Education, *Biennial Survey of Education in the United States,* 1942-44, Sept.) was 2,029,368—boys, 1,004,789; girls, 1,024,579. There were in 1943-44 for the same 17 southern states and the District of Columbia an enrollment of 247,374 pupils in high school—boys, 84,886; girls, 162,488.

Of the 2,276,742 Negro pupils in elementary and high-school grades, there was an average daily attendance of 1,852,950; total number of days attended by all Negro pupils, 303,802,159; average number of days attended by each pupil enrolled during the year, 133; average length of school term in days, 164; percentage of enrolled pupils in daily attendance, 81.4; and percentage of pupils in high school grades, 10.9.

The Negro public-school instructional staff numbered 66,553—elementary schools, 55,223 (in 1919-20, 37,625); high schools, 11,330 (in 1919-20, 935). Here is evidence of a growing interest in Negro high-school education, since in 1919-20 there were 2,070,374 pupils in elementary grades; and 33,341 pupils in high school grades.

Negro high-school graduates in 1943-44 numbered 31,180—boys, 8,338; girls, 22,842. The number of Negro pupils per classroom teacher has been as follows: 1919-20, 55; 1929-30, 45; 1939-40, 38; and 1943-44, 35. The pupil-teacher rate for the 31 states not having separate schools for Negroes is 27.5.

PROBLEM OF DISTRIBUTION

The enrollment in Negro elementary and secondary schools varied widely from state to state and often the states with the lowest economic income had the heaviest burden in supporting even inferior schools for whites and Negroes, as the following Office of Education figures indicated for 1943-44:

ENROLLMENT IN ELEMENTARY AND SECONDARY SCHOOLS

	White	Negro
Alabama	413,567	228,468
Arkansas	300,898	99,999
Georgia	426,126	256,023
Louisiana	269,347	163,248
Mississippi	275,097	272,495
North Carolina	568,919	256,634
South Carolina	244,042	204,942
Tennessee	503,686	102,734
Texas	1,043,438	199,547
Virginia	391,937	142,841

For 1943-44, some 2,276,742 Negro pupils were distributed as follows—elementary (including 8,515 in kindergarten), 2,029,368, with 539,762 in grade 1; 282,170 in grade 2; 271,737 in grade 3; 254,872 in grade 4; 225,511 in grade 5; 196,298 in grade 6; 163,629 in grade 7; and 86,874 in grade 8; secondary, 247,374, with 99,148 in year 1; 68,404 in year 2; 47,695 in year 3; 31,989 in year 4; and 138 in postgraduate year.

By slow degrees Negro schools have reduced the congestion of pupils in grades one to three and have held more pupils to graduation from both the elementary and the secondary schools.

For 1943-44 the Office of Education reported as follows on Negro education in 17 southern states and the District of Columbia: Total instructional staff, 66,553, including 298 supervisors, 1305 principals, and 64,950 teachers—men, 8147; women, 56,803—including 52,265 elementary and 12,685 secondary teachers; cost per Negro pupil in average daily attendance, $34.

PROBLEM OF COST

The per-pupil costs varied, for example, as follows: Alabama, $25.65; Arkansas, $25.81; Florida, $47.44; Georgia, $23.63; Louisiana, $40.25; Maryland, $90.82; Mississippi, $11.96; North Carolina, $50.07; Oklahoma, $95.21; and South Carolina, $26.89.

Some expenditures for Negro public day schools in 15 southern states and the District of Columbia for the year 1943-44 were reported as follows by the Office of Education: general control, $1,383,141; instruction, $38,276,122, including $37,043,898 for salaries of instruction staff and $486,217 for textbooks; operation of plant, $1,294,094; maintenance, $1,418,748; promotion of health, $120,175; and transportation of pupils, $1,349,834.

Whereas Arkansas spent $1,547,555 on Negro instruction and Mississippi spent $2,309,435, Georgia spent $4,131,875 and North Carolina spent $9,410,738. In all these instances, however, economic income and racial understanding were important factors in state outlay for Negro education.

PROBLEM OF EQUALIZATION

The *Journal of Negro Education* (Summer yearbook) presented in 166 pages interesting and valuable material on "The Availability of Education in the Negro Separate School," prepared by 25 men and women who represent real leadership in the field of Negro education. Editor Charles A. Thompson, dean of the Howard University Graduate School, supplied a critical introduction and came to the following conclusion:

"The elimination of disparities in financial outlay for Negro and white common schools has been so slow that, even if equality of expenditures assured equality of educational opportunity, it would take 25 years or more for the Negro schools to reach the point where the white schools are *now,* and a hundred years to attain parity. . . . To date, the validity of the 'separate but equal education' principle has not been demonstrated anywhere; and theoretically it is impossible as well as undemocratic. . . . It is clear that segregation in education based upon race must be abolished. The question is when and where to start. It is the considered opinion of a growing number of intelligent people, North and South, white and Negro, that we should begin *now* in the graduate and professional fields, gradually working down to the lower levels."

Among the major topics in the Yearbook are the following: "Origin and Development of the Negro Separate School"; "Present and Legal Status"; "Education of Negroes in States Where Separate Schools Are Not Legal"; "Development and Character of Permissive and Partly Segregated Schools"; "Negro Education in Sixteen Southern States and the District of Columbia"; "Availability of Education for Negroes (a) in the Elementary and (b) Secondary School"; "Higher Professional Schools for Negroes"; and "Special Educational Services to Negroes."

Some brief findings follow: The Negro school term in 1945 was about equal to the white school term in 1930. Negro school teachers in 1945 received an annual salary of $939 (in 1930, the average was $510). The difference in white and Negro teachers' salaries has been reduced from 85 per cent to 40 per cent in the last 15 years. This reduction has been made possible by court decisions that required the payment of equal salaries to white and Negro teachers with the same training when they were doing similar work. Very little progress has been made in the equalization of facilities for transporting Negro pupils to school or for providing public-school buildings and equipment. In 1945 the amount invested in Negro school property was $52 for each Negro pupil (white, $224). "It would take, at the present rate of progress, 60 years before the buildings and equipment in Negro common schools would become substantially equal to those provided for white pupils in 1945, to say nothing of the future." Proportionately, three and a half times as many white pupils as Negro pupils are furnished transportation to school and twice as much per pupil is spent for transporting a white pupil as for a Negro pupil. Texas spent as much money merely to transport white pupils to school in 1945 as it spent on the Negro common schools for everything—teachers' salaries, transportation, teaching materials, etc.

FAVORABLE TRENDS

From 1939-40 to 1943-44, the average length of school term for Negroes increased in 17 southern states and the District of Columbia from 156 days to 164 days (white, from 170.8 to 173.5). The average number of days attended by Negroes increased from 125.7 days to 133.4 (white, for both periods was 145). The average number of pupils per teacher in Negro schools showed a decrease from 37.7 to 34 pupils (white, from 29.2 to 28).

The expenditures and teachers' salaries in Negro schools in the past 10 years increased substantially. The average annual salary of principals, supervisors and teachers for the year 1943-1944 ranged as follows:

State or District of Columbia	Whites	Negroes
Alabama	$1,158	$ 661
Arkansas	924	555
Delaware	1,953	1,814
Florida	1,530	970
Georgia	1,123	515
Louisiana	1,683	828
Maryland	2,085	2,002
Mississippi	1,107	342
Missouri	1,397	1,590
North Carolina	1,380	1,249
Oklahoma	1,428	1,438
South Carolina	1,203	615
Tennessee	1,071	1,010
Texas	1,395	946
West Virginia	1,364	1,129
District of Columbia	2,610	2,610

Source: *Biennial Survey of Education*, 1942–44, U. S. Office of Education, 1947.

The differentials in school pay appeared to have no corresponding effects on average length of term in days in school (Negroes, 164.0; whites, 173.5); average number of days attended by each pupil enrolled in school (Negroes, 133.4; whites, 145); and number of pupils enrolled per member of instructional staff in schools (Negroes, 34; whites, 28), according to U. S. Office of Education figures, published in 1947.

PROBLEM OF DISCRIMINATION

"Differentials in the per-capita expenditures for Negroes and whites in southern states have been reduced," said Walter White, executive secretary of the National Association for the Advancement of Colored People (New York), to a Town Hall audience (Oct. 7); "but even today four times as much is spent for the education of white children as for Negro children. Scientists are unanimous in saying that there is no difference based on race or skin color in the educability of human beings; but Negroes are not four times as intelligent as whites, and thus able to compete in the grim race of life with one-quarter of the education given to their white fellow-Americans. It is not Negroes alone who pay the price for such discrimination. It is America itself."

Prof. Robert Redfield, professor of anthropology, University of Chicago, pointed out in "Race and Religion in Selective Administration," (*Journal of the American Association of Collegiate Registrars,* July) that the per-pupil annual expenditure for public schools showed great variation among states as well as between racial groups as shown below:

	Whites	Negroes
New York	$157	—
New Jersey	136	—
North Carolina	46	$28
Alabama	48	15
Mississippi	52	7
Arkansas	37	14
Missouri	80	—
Illinois	115	—
Minnesota	100	—
Nebraska	74	—
Texas	73	28
Colorado	92	—
Montana	109	—
Nevada	131	—
California	142	—

CIVIL RIGHTS

The President's Committee on Civil Rights reported as follows on Negro education: "With respect to education, as well as other services, the committee believes that the 'separate-but-equal' rule has *not* been obeyed in practice. There is a marked difference in quality between the educational opportunities offered white children and Negro children in the separate schools. Whatever test is used—expenditure per pupil, teachers' salaries, the number of pupils per teacher, transportation of pupils, adequacy of school buildings, and educational equipment, length of school term, extent of curriculum—Negro students are invariably at a disadvantage.

"Opportunities of Negroes in public institutions of higher education in the South, particularly at the professional- and graduate-school level, are severely limited" (*The New York Times,* Oct. 28).

"The provision of higher and professional opportunities for Negroes by several States is relatively little, if any, better than 15 years ago." Three times as many undergraduate curricula are offered in the average state college or university for white students as are offered in the corresponding Negro higher institution. Graduate work is offered in 8 Negro state colleges in seven states, which gave work leading to the Master's degree only. No Negro higher institution, public or private, offers work leading to the Doctor's degree. Graduate work leading to the Master's degree is offered by at least one state-supported institution for white students in each of the 17 southern states, and the Ph.D. degree is offered in 12 states (*Journal of Negro Education,* Summer).

PROFESSIONAL LEVEL

Professional education in state institutions was available for white students as follows: Dentistry, 4 states; law, 16; medicine, 15; pharmacy, 14; social work, 9; and library science, 11. For Negroes, no state-supported institution in any state provides opportunity for training in medicine, dentistry, or pharmacy;

and only four institutions offer training in law and only one in library science.

In 1944, an amount equal to $2.43 for each person in the white population of 17 southern states was expended for public white higher institutions as contrasted with 56 cents for each Negro. In 1930, the corresponding amounts were $1.39 for whites and 33 cents for Negroes. The difference in favor of white institutions has increased by 13 per cent.

SEGREGATED EDUCATION

Behind the thought and action of many leaders in Negro education, during 1947 in particular, was the silent working force of the disturbing idea of racial segregation, which the masses apparently accepted as inevitable if not acceptable and leaders strove to eliminate—apparently in vain.

Liberals who wished to see segregation modified so that Negroes would receive equal treatment in the allotment of jobs in industry, in jimcrow railroad service, and in dual school systems received little encouragement, since the final pinch came to Negroes who, except for some odd centers in the border states, remained practically voteless, even though they had indicated a willingness to give up a mythical alliance with Republicanism.

Dr. Will W. Alexander, vice-president of the Julius Rosenwald Fund (Chicago), Dr. Charles S. Johnson of Fisk University, and Mrs. Harper Sibley, president of the United Council of Church Women, joined in warning against the spread of segregation at the January meeting of Survey Associates. Segregation was characterized as "a substitute for slavery" and as damaging the personalities of those who perpetuate it. The general call to the nation was: "Help America relieve itself of the necessity for hypocrisy."

On June 27 the National Association for the Advancement of Colored People, representing a membership of 535,000 citizens in 184 chapters, announced a systematic drive against the dual educational system in the 17 southern and border states. Thurgood Marshall, chief of the NAACP legal staff, stated that the line of attack would start from the top, with professional and graduate schools being given first consideration.

Cases were already under way in Louisiana, Oklahoma, South Carolina, and Texas, with the schools of higher education being challenged first because they appeared to be most vulnerable.

"There can be no equality," said Marshall, "as long as there is segregation, regardless of the dollar-and-cents equality argument that many persons have raised in the past. The only way to attack racial discrimination is to attack racial segregation. In due time it [the attack] will get down to the grade schools and the kindergartens, wherever public money is being spent for education." Marshall added that local branches of the Association will handle future cases filed for equal salaries for Negro teachers in segregated schools and will use local lawyers. Cases have been filed to adjust salaries in Arkansas, Georgia, Louisiana, and Virginia.

Northern cities were warned by the NAACP to be on guard against the growth of separate schools, and the creation of racial ghettos must be viewed with real alarm. Ghettos bring about neighborhood schools that are racially separate (*The New York Times,* July 28).

COLLEGE EDUCATION ENROLLMENT

According to Martin D. Jenkins of Howard University (*School and Society,* May 10, and *Journal of Negro Education,* Summer), enrollments in Negro colleges and universities reached new high levels in 1947. Ninety-six institutions, for example, reported a total of 59,150 resident students in undergraduate, graduate, and professional curricula. There were 56,984 Negro undergraduates in 92 institutions; 822 graduates in 15 institutions; medicine, 514 in two institutions; dentistry, 314 in two institutions; and law, 149 in three institutions.

Dr. Jenkins estimated an overall enrollment of 63,000, of which veterans constituted 30 per cent. Fifty-four per cent of the undergraduate students and 85 per cent of the graduate students were to be found in private institutions. Seventy per cent of the undergraduates were attending full-accredited institutions. A typical Negro institution of higher learning is one with a student enrollment of 470.

For the full year 1945-46 the Negro enrollment in higher institutions was approximately 85.000 students. Howard University (Washington, D. C.) had an enrollment of 5,045, including 3,374 veterans during the fall term and 6,913 during the academic year 1945-46.

Among all 1945-46 graduates there were 5.448 with a baccalaureate degree; 311 with a Master's degree. Sixteen Negro institutions offered work leading to the Master's degree.

TEACHER SALARIES

A survey of Negro colleges revealed the fact that the median 9-month salary of a representative group of institutions was only $1,316. Probably this median in 1947 reached $1,500, a sum surely too small to attract promising young college teachers of any group. Professor Thompson pointed out that the median salary in Negro land-grant colleges was only 60 per cent as high as the median salary in the white land-grant colleges. The penalizing effect of this fact on a minority group is self-evident, despite all explanations.

Negro colleges in general lack salary schedules. "Promotion becomes a matter of bargaining, with the college offering to pay no more than is necessary to retain the teacher. If the teacher does not have another offer in hand, he generally gets little or nothing." Very few Negro colleges have a tenure system. Generally the president decides questions of tenure. "The teacher in the typical Negro college," according to Professor Thompson, "holds his position subject only to the will of the president, and without adequate provision for old age. . . . Teaching in a Negro college does not look as attractive as it did some years ago, when the occupational horizon of Negro youth was much narrower."

In the fall of 1946, some 18,216 Negro veterans enrolled in college—44.41 per cent over the fall of 1945. For all types of institutions, the percentage rise was 3.92. Negro colleges increased their veteran enrollment by 8,090 students and reached 26,306, according to a U. S. Office of Education press release (Nov. 26).

The largest percentage increase in college enrollment for the Fall of 1946 was in Negro institutions; namely, 26.05. The Negro college enrollment for 1946-47 was 74,173 as against 58,842 for the year before. The Negro freshman enrollment was 23,248 as against 21,769 the year before, an increase of 6.79 per cent.

FACULTY SHORTAGE

As Prof. Charles H. Thompson of Howard University (Washington, D. C.) pointed out in "Improvement of the Negro College Faculty" (*Journal of Negro Education*, Winter), since the First World War Negro colleges have developed from high school to full college status; many of them "have practically built new plants"; many of them have developed effective faculties; and many of them have been accredited by regional associations.

Today, however, Negro colleges need to recruit immediately 1,000 faculty members; need 15 to 20 per cent more teachers to meet the increasing student enrollment made up largely of returned soldiers, sailors, and airmen; and need to meet the higher salaries offered young men and women in industry, in public-school and government service, and in private business.

The Negro colleges are struggling to encourage bright young men and women to make college teaching a career. As more vocations are opened for Negroes, the more difficult it becomes for Negro colleges to attract, with their relatively small salaries and heavy teaching loads, the kind of prospective faculty members they need.

FINANCIAL CAMPAIGN

The United Negro College Fund, Inc. (New York) sought to raise during 1947 the sum of $1,300,000 for 33 member colleges. Frank M. Totton, vice president of the Chase National Bank, served as chairman, and John D. Rockefeller, as chairman of the national advisory committee. Those who were active in working for the Fund supported vigorously the idea that the Negro problem is not insolvable, if the American people support a constructive program in Negro education which aims, in part at least, to train competent leaders with a college background.

This Fund assisted colleges with a current enrollment of 14,340 men and 12,612 women, as well as a probable summer enrollment of over 11,000 teachers. The total endowment of all the Negro colleges sharing in the Fund was $41,000,000, which is less than half of the endowment of Yale alone.

FIRST NEGRO PRESIDENT OF FISK UNIVERSITY

Fisk University at Nashville, Tenn., set aside Nov. 6-8 as the inauguration period for its first Negro president, Dr. Charles Spurgeon Johnson, and held a series of conferences and seminars on social science, education, and international relations. The speakers in 15 fields included Mrs. Franklin D. Roosevelt; President Frank Graham of the University of North Carolina; J. Melville Broughton, former Governor of North Carolina; Prof. Howard W. Odum, of the University of North Carolina; President F. D. Patterson of Tuskegee Institute; Chancellor Harvie Branscomb of Vanderbilt University; President Mordecai W. Johnson of Howard University; Frank W. Jenkins, president of the International Harvester Company; Ralph Bunch, director of United Nations Division of Trusteeships; Mark Ethridge, publisher of the *Courier-Journal* (Louisville); Marshall Field, 2d, publisher; Governor William Hastie of the Virgin Islands; and Dr. Calvin Hoover, research director of the National Planning Association's Committee for the south.

Dr. Johnson is the sixth and first Negro president of Fisk University which was established in 1866 by the American Missionary Association and the Western Freedmen's Association. More than 2,000 visiting educators, alumni, and friends attended the induction ceremonies.

The new president of Fisk is a native of Bristol (Va.) and received his undergraduate training at Virginia Union University (Richmond). Following his service with the infantry in the First World War, he achieved a distinguished career as author, social investigator, organizer, and teacher. He is widely known for his work as editor of *Opportunity,* a publication of the National Urban League; as director of the Governor's Commission on Race Relations in Chicago, which set to work after the riots of 1921; and as American delegate to the first session of the United Nations Educational, Scientific, and Cultural Organization.

GRADUATE EDUCATION

Every southern state, except Mississippi, according to *The New York Times* (Jan. 19), has provided graduate education for Negroes under the costly system of differential scholarships that grew largely out of a Supreme Court decision—Gaines case—of 1938.

During 1947, some 2,500 Negroes were receiving some financial aid under these scholarships, awarded when a Negro student can not study for a graduate degree, because it is not offered in the state college or he is denied admission to the state university because of his or her color.

In most cases these scholarships

make up the difference it would cost a Negro to study in his state's white school and his expenses at another college where segregation is not required. The differential scholarships were not generally adopted until after Lloyd Gaines applied for admission to the University of Missouri Law School and was denied on account of his race.

In 1938, the U. S. Supreme Court ruled that when a state provides educational opportunities on a certain level to one racial group there is legal obligation to furnish substantially the same opportunities to all racial groups. The State of Missouri later set up a Negro law school in St. Louis, a graduate school in journalism at Lincoln University for Negroes, and in addition appropriated $25,000 a year for differential scholarships.

The Supreme Court admitted the right of states to segregate by races, but required them to offer equal educational facilities. The southern states have instituted programs to finance out-of-state training for its Negro citizens seeking graduate and professional training.

PROGRESS IN GRADUATE COURSES

North Carolina has developed many graduate courses for Negro citizens. The state has a full School of Law at the North Carolina College for Negroes and there offers graduate work in certain educational fields. Graduate training in science is offered at the Agricultural and Technical College for Negroes at Greensboro and is being expanded to meet growing demands. North Carolina still maintains an unlimited appropriation to cover graduate studies that are not otherwise offered to Negro citizens of the state. In 1945, for example, North Carolina paid out $22,000 to send Negro students for out-state training. In 1946, 170 Negro students applied for differential scholarships.

In lieu of the differential scholarships, Virginia makes it possible for its Negro citizens to take an outright grant equal to the state cost per student in the institution to which admission was denied. It should be noted that in 1945 Virginia spent $75,000 on differential scholarships which went to 377 Negroes and 35 medical and dental scholarships.

Hampton Institute (Va.) included in its 1947 Summer-school program a series of programs devoted to the arts of the theatre, including the dance, the cinema, the folk symphony, the classical drama, and the modern play, for the enjoyment and cultural enrichment of Negro teachers and white citizens of the local community. This institution also offered credit courses for graduate students in art, 2; education, 16; English, 5; home economics, 6; industrial education, 4; and social science, 6; as well as eight courses in special education for teachers who deal with those having hearing and speech defects and those who are blind.

The Hampton workshop program enabled Negro teachers to concentrate their study on specific problems that related to their schools and communities. This 5-hour a day study included laboratory and classroom work, lectures, demonstrations, conferences, audio-visual aids, trips, and systematic reading. The following workshops were held: personal health problems of supervisors; nutritional deficiencies and corrective feeding; guidance through education; public-school reading problems; high-school dramatics; and audio-visual aids.

PROFESSIONAL EDUCATION

The Southern Governor's Conference served notice on Congress that the South would seek its approval of legislation authorizing state compacts for establishing cooperative ownership and operation of regional schools for providing professional training of Negroes, a subject of current court litigation in several southern states.

According to *The New York Times* (Oct. 22): "The governors discussed the question whether establishment of a regional [professional] school for Negroes as a possible solution of the racial educational problem in the South might not meet the constitutional requirements handed down in recent decisions of the United States Supreme Court. . . ."

NEGRO PHYSICIANS

Dr. Montague Cobb, professor of anatomy, Howard University Medical School, conducted a survey for the national health committee of the National Association for the Advancement of Colored People (New York) and uncovered some striking—even startling—facts, some of which follow.

Howard and Meharry, the two existing Negro medical schools, are not meeting the community needs of the Negro population. The combined resources of these two professional schools are not keeping pace with the growth of the Negro population. Howard Medical School has over 1,300 applications for 70 places in the next class; Meharry faces practically the same problem. The professional aptitude test ratings of applicants for the Negro medical schools have regularly averaged below the national mean.

A few Negro students were attending the northern universities, but some 3,000 Negroes attended southern colleges, "creating a bad situation with the economically poor regions supplying the majority of the trained Negro personnel."

Ranking dental schools have had similar experiences in securing good prospective students.

There are 87 qualified Negro specialists in the United States, largely concentrated in Washington, Chicago, New York, St. Louis, Philadelphia, and other cities. The policies of the American Medical Association make membership contingent upon membership in a local, county, or state association, which usually deny membership to Negro doctors. The ratio of Negro physicians to population range from a national ratio of 1-to-780 to 1-to-1,002 in Missouri, and 1-to-18,527 in Mississippi.

Over 9,000 Negro physicians are needed to meet the minimum standard on the basis of a segregated community. Not all Negro physicians, however, are opposed to segregated schools and hospitals.

TEST CASE IN OKLAHOMA

In November, the U. S. Supreme Court agreed to decide whether Oklahoma must admit a qualified Negro applicant to its State University Law School. Oklahoma courts had held that it would be illegal to admit Negroes to white schools or for white students to be admitted to Negro schools.

The test case was brought by Ada L. Sipuel, graduate of Langston University (Okla.). The case began in the Winter of 1945-46, when the State University conceded that Miss Sipuel's application papers were in order, but denied her admission because she was a Negro. Miss Sipuel brought suit in Cleveland County District Court to compel the University to admit her. This plea was denied and the State Supreme Court affirmed the ruling of the lower court.

The Oklahoma courts held that Miss Sipuel's admission was contrary to the constitution, laws, and public policy of the State. Oklahoma has provided out-of-state scholarship aid for Negroes. No Negro law school has been maintained by Oklahoma.

Miss Sipuel contended (1) that equal protection of the laws, guaranteed by the U. S. Constitution, was being denied her; and (2) that it was the unquestioned duty of the State of Oklahoma to provide equal educational facilities for Negroes and white persons.

SOUTH CAROLINA DECISION

Federal Judge J. W. Waring held early in July that South Carolina need not admit a Negro to its state law school. If the state chooses not to do so, however, it will have to provide adequate facilities for Negro students at a Negro college or "furnish no law-school education to any persons of either the white or Negro races." The law does not forbid segregation, but it forbids discrimination.

NEW COLLEGE IN TEXAS

In September, the State of Texas opened a new college for Negroes on a 53-acre tract of land on the outskirts of Houston. Two thousand students had applied for segregated education. This development came about in a peculiar fashion. In February 1946, Herman M. Sweatt, a Negro former mailman and war veteran who was qualified for the study of law, applied for admission to the State of Texas University Law School, but was rejected on the ground that he was a Negro.

The National Association for the Advancement of Colored People, relying on the U. S. Supreme Court in the 1938 decision on the Gaines case in Missouri, brought a mandamus suit to require the State of Texas "to fulfill its legal obligations to provide adequate educational facilities for all residents, regardless of race or color." Texas' only state-supported Negro college at Prairie View offered no law course. The Attorney-General argued that segregation was part of the state constitution and could not be changed. Finally, the Legislature appropriated money for a Negro university at Houston and an interim Negro law school at Austin, which, according to *Life* (Sept. 29), was "an inadequate 3-room basement suite with a few part-time professors. Sweatt did not show up to register. Neither did anyone else." Neither Sweatt nor the NAACP was satisfied with the interim Negro law school and the suit against the University of Texas continued.

It should be noted that the new Negro college near Houston has no law school. Allen E. Norton, the acting president who is a Negro, recently stated that it would probably take 25 years to build this institution into a university that could adequately serve Negroes in the matter of professional education.

HEALTH EDUCATION GRANTS

Negro education throughout the nation was given marked impetus during 1947 through important money grants from the National Foundation for Infantile Paralysis (New York). Tuskegee Institute (Ala.) received $60,000 for the training of students in polio nursing. Prior appropriations for the Tuskegee Institute Infantile Paralysis Center included $78,536 for after-care of Negro orthopedic cases; $72,498 for the development of laboratory facilities; $14,876 for the nurse-training program; and $5,140 for use in areas where hospital facilities were inadequate.

The Provident Medical Association of Chicago received a grant of $50,000 for fellowships in orthopedic surgery, pediatrics, and neurology, for Negro physicians. This grant became effective July 1.

Meharry Medical College (Nashville, Tenn.) received $41,840 for instruction in pediatrics, $16,200 in orthopedic surgery, and $9,630 to provide service training and to improve the teaching program in physical medicine. These grants became effective July 1.

The Georgia Warm Springs Foundation received aid with which there could be provided eight beds for emergency cases for Negro patients in that area. These patients would be transferred elsewhere when facilities should become available.

A special grant of $8,800 was made to the North Carolina College for Negroes to train Negro teachers, supervisors, and coordinators of health education.

The Duke University School of Medicine (Durham, N. C.) was given a grant of $2,400 to provide a clinical supervisor at Lincoln Hospital (Durham).

Knickerbocker Hospital, located in the Negro area of New York City, received $30,866 for the first of a series of training and treatment centers in the care of polio cases.

Individual scholarships were awarded to Negro applicants through the U. S. Public Health Service and the National Research Council (Washington, D. C.).

At the recent annual observance of National Negro Health Week, inaugurated 33 years ago by Booker

Washington, the fact was announced officially that today the life expectancy of American Negroes, North and South, as "57 years" (*Time*, April 7). Nevertheless, Negro health still lags a full generation behind that of American whites with a white life expectancy of 66 years, according to the U. S. Public Health Service. The Negro infant death rate is 63 per cent higher than that for the white infant. Major killers among Negroes are tuberculosis, kidney disease, and pneumonia. The cancer rate among Negroes has been rising, too. Negroes have only 124 hospitals—"many of them substandard," according to *Time*—with a total of 20,800 beds out of a national total of 1,700,000—even when Negroes constitute about 10 per cent of the entire population.

PUBLICATIONS

Some of the outstanding publications of 1947 that shed light on the American Negro and his problems, particularly his educational problems, follow: *Minority Problems in the Public Schools*, by Theodore Brameld (Harper); *One America: . . . Problems of Our Racial and National Minorities*, by Francis J. Brown and Joseph S. Roncek (Prentice-Hall); *Jim Crow America*, by Earl Conrad (Duell, Sloan, Pearce); *Slavery to Freedom*, by John H. Franklin (Knopf); *Into the Main Stream* by Charles S. Johnson (University of North Carolina); *When People Meet: Study in Race and Culture Contacts* (Hinds, Hayden, Eldredge); *High Cost of Prejudice*, by Bucklin Moore (Messner); *Negro Handbook*, by Florence Murray (A. A. Wyn); *Negro Business and Business Education*, by Joseph A. Pierce (Harper); *Slave and Citizen*, by Frank Tannenbaum (Knopf); *God Is for White Folks*, by Will Thomas (Creative Age); and *Education for Negroes in Mississippi Since 1910*, by Charles H. Wilson (Meador).

LIBRARIES

By Mildred Othmer Peterson
Special Assistant, American Library Association

OPERATING COST PROBLEM

Facing most libraries are the major problems of operating costs, which have increased 50 per cent since 1940 while incomes have lagged far behind, and acute personnel shortages.

The impetus which the war and peace gave to the use of libraries has not lifted their incomes to the same degree, according to the 1946-47 report of Carl H. Milam, executive secretary of the American Library Association. Statistics for all types of libraries are not available, but the total expenditures for libraries in the United States have increased from $50,485,609 in 1935 to $64,917,302 in 1945, or an increase of about 12½ per cent as against an estimated increase in costs of about 50 per cent. "Such a reduction in the buying power of libraries would be serious at any time. It is tragic in this period when the U. S. and the world need a great improvement and expansion of the agencies of communication, information, and education. Never in the history of the world has it been so urgently necessary that people's opinions be based on truth, not on prejudice and propaganda."

NATIONAL PLAN FOR PUBLIC LIBRARY SERVICE

Under the leadership of Carleton B. Joeckel, the National Plan for Public Library Service (see "Libraries" 1946) was completed, but its realization depends upon the citizenry at large. The published plan proposes that public library service be provided through the maintenance of about 1,200 large library systems which would serve the entire population rather than the 7,500 established libraries, which leave one-third of the population unserved and another third very inadequately provided for. Also proposed by the plan are 20 multi-state reference centers, 48 effective state library agencies, and a national bibliographic and library center. These local, state, regional, and national agencies are to be interlocking to form a federated system. The standard set is $1.50 per capita for minimum service with no unit receiving less than $37,500 annually. In 1941, the extreme range of income was from $1.02 per capita in Massachusetts to 4 cents in Mississippi. In five states, the expenditures were less than 10 cents per capita and, in 33 states, less than 50 cents per capita was available. The National Plan states: "The American Public Library is an expression of American Democracy in action. If library planning is to succeed at any level of government, active citizen support is essential." It is estimated that $200,000,000 annually will be needed for services, $500,000,000 for new buildings and enlargements and repairs on present buildings, and $175,000,000 for stocking new and substandard libraries. Present annual public library expenditures are approximately 60 per cent of the amount which local communities should provide for library service. Also proposed in the plan are new and improved types of service, use of audio-visual materials and other new media of communication, and ways of improving personnel, buildings, and library methods.

OTHER NATIONAL GROUP PLANNING

Almost all other library groups have also adopted or are completing national plans. These include College and University Libraries and Librarianship, the Farmington Plan for research libraries, School Libraries for Today and Tomorrow, The Public Library Plans for the Teen Age, and Objectives and Standards for hospital libraries. Plans are also being completed for children's library service, for international relations, for library use of audio-visual materials, for the recruitment and professional education of more and better library personnel, and for new library buildings.

AMERICAN PUBLIC LIBRARY INQUIRY

Financed by a Carnegie Corporation grant of $175,000 to the Social Science Research Council, a two-year study known as the American Public Library Inquiry is being made under the direction of Robert D. Leigh. This study of the American free public library, which was proposed by A.L.A., will include a comprehensive survey of the adequacy of the public library as a source of citizen information, and an analysis of its actual and potential contribution to American society. In each of the 49 representative American communities, ranging from metropolitan to rural areas, which have been selected for study, the character of the library facilities and their relation to the needs of the population will be analyzed (see *A.L.A. Bulletin,* November 1947). This study is considered the most important piece of library research ever undertaken in the United States.

CONFERENCE PLANNING AND GRANTS

Organized by A.L.A. and financed by a Carnegie Corporation grant, a Conference on International, Cultural, Educational and Scientific Exchanges was held in Princeton, N. J. in November 1946. Conference recommendations and plans covered such subjects as bibliographies, inter-library loans, rehabilitation of libraries, and exchange of publications and personnel.

During 1947, after more than a year of planning, advertising and selling, the Library Public Relations Service, sponsored by A.L.A., was launched by a firm of public relations counselors with about 100 libraries subscribing. Cooperatively financed, the plan offers public relations programs and materials for the better interpretation of the library and its potentialities to the public.

Needed services which the A.L.A. hopes to undertake when funds are available include: an expanded program in adult education; implementation of the national plans; promotion of specialized library service for labor; a vigorous recruiting campaign; and improvement in the present A.L.A. Headquarters service.

AUDIO-VISUAL SERVICES

In the field of library audio-visual services the grant to A.L.A. of $27,000 from the Carnegie Corporation for a two-year program makes possible observation, exploration, and promotion, as well as planning in this relatively new type of library service. Direct assistance, by a specialist in this field, is also offered to libraries in inaugurating such services.

LOCAL OR REGIONAL SURVEYS

Several local or regional surveys with recommendations for future activities were made during the year. These include the A.L.A. surveys of the Carnegie Library of Oklahoma City by Joseph L. Wheeler and Walter Herbert Kaiser and of the Stanford University Libraries by Louis Round Wilson and Raynard C. Swank. A survey of the library resources of nine southeastern states—Alabama, Florida, Georgia, Kentucky, Mississippi, North and South Carolina, Tennessee, and Virginia—is being made under the auspices of the Tennessee Valley Library Council by Marion Milczewski. In Ohio, New York, and Connecticut, statewide surveys have been made of library facilities and services.

RELATIONS WITH FEDERAL AGENCIES

The work of the A.L.A. National Relations Office in Washington (see "Libraries," 1946) has centered around the following three categories since its establishment in October 1945: legislative activities, relations with Federal agencies, and relations with other organizations. Library relations with Congress were concerned with the Library Demonstration Bill (S.48; H.R. 2465), revision of the postal rates, establishment of a National Science Foundation, Federal aid to education, proposed restriction on use of funds for national archives, extension of social security, cultural relations with other countries, and appropriations for the Library of Congress, Library Service Division of the U. S. Office of Education, Army libraries, and UNESCO. It is estimated that the efforts of the national relations program have prevented an increase in cost to libraries of between $200,000 and $250,000 annually in postal rates.

INTERNATIONAL ACTIVITIES

There is a strong feeling of responsibility among librarians throughout the world that a quiet but determined effort on their part is necessary in promoting understanding during an uneasy period of time, according to the annual report of Flora B. Ludington, chairman of the A.L.A. Board of International Relations, which has a Washington, D. C. office maintained by a Rockefeller Foundation grant. This feeling of responsibility, together with renewed opportunities for travel and for cultivating professional relationships, has given U. S. librarians many contacts with foreign librarians both in this country and abroad during the year.

International library activities included: final work on the books and periodicals projects for devastated libraries in war areas, Latin America, China, Philippines, and the Near East; the completion of the A.L.A.'s contract with the U. S. State Department covering the operation of the American libraries at Mexico City, Managua, and Montevideo; visits of foreign librarians; representation at meetings of the Committee of the International Federation of Documentation; participation in the Assembly of Librarians of the Americas at the Library of Congress; attendance of a large number of distinguished librarians from many parts of the world at the A.L.A. Conference at San Francisco; visits of several U. S. librarians, as consultants, to Japan, Korea, and Germany at the request of the U. S. Government; and cooperation with the Junior Red Cross in the inauguration of a project for the translation of children's books into foreign languages.

Since the inception of UNESCO, librarians have participated in its work, including representation at the general conferences, membership on the U. S. Commission, and the assembling of materials for a public library exhibit at the second General Conference in Mexico in November 1947. Librarians of the U. S. are especially interested in the library program of UNESCO, and an active part has been taken in advising and planning. In response to request for advice, the International Relations Board has proposed that UNESCO library rehabilitation funds be used for planning, stimulating, and coordinating; that the elimination of currency exchange barriers be emphasized; that an agency of each country report to UNESCO the most urgently needed library materials and that there should be no questionnaire survey of losses at this time; that UNESCO should facilitate reestablishment of direct exchange relationships; and that UNESCO should frequently make public the extent of its program. (For the complete annual report of the International Relations Board, as well as other reports, see the Oct. 15, 1947 issue of *A.L.A. Bulletin.*)

GRANTS OF THE INTERNATIONAL RELATIONS OFFICE

Since its establishment in 1942, the International Relations Office has expended grants totaling over $1,800,000 directly or indirectly to promote library interests throughout the world. Approximately $900,000 was received from the Department of State, $800,000 from the Rockefeller Foundation. and the balance from other sources. A total of $365,000 was spent for 100,000 volumes, which were sent to 986 libraries in 21 Latin American countries; $450,000 for American libraries in Latin America, principally those at Mexico City, Managua, and Montevideo; $550,000 for books and periodicals as aid to libraries in war areas; and $100,000 for books for China, $85,000 for books for the Near East, and $24,000 for books for The Philippines.

After five years of wartime operation on a large scale the A.L.A. International Relations Board surveyed its work and made the following recommendations for the future: a reduction in the operation of long-time projects such as purchases of books for other countries; more emphasis on advisory, planning and coordinating services in the broad field of international understanding. The policy statement and survey report by Ralph R. Shaw were published in the (June 1947) *A.L.A. Bulletin.*

OTHER INTERNATIONAL ACTIVITIES

On June 24 to 26, 1947, the first annual conference of the Canadian Library Association was held at the University of British Columbia, Vancouver.

Seventeen U. S. information libraries in foreign countries were closed (50 remain open) and 13 librarians recalled from overseas duty by the State Department because of reduced appropriations.

The American Library in Paris, an effective cultural link between France and America since its founding in 1920 by the A.L.A., circulated over 8,500 books and 1,500 periodicals monthly, according to its 1945-46 report. Its patrons are 80 per cent French and 20 per cent other nationalities.

March, 1947 was the first anniversary of the founding of the first library in London devoted entirely to the needs of boys and girls from 6 to 16 years of age.

A new school of library science was founded in Campinas, Brazil. This is one of the training centers made possible by librarians trained at the Library School of São Paulo, Brazil.

A chain of repository libraries throughout the world, to receive all official United Nations publications and to act as local research centers on matters of world organization, was developed by the United Nations Library Service, Lake Success, N. Y. A total of 215 large, recognized national and university libraries, including 28 in the U. S., comprise the network.

Articles in the (June, 1947) *Wilson Library Bulletin* give present day information on various European libraries. In Denmark, for example, it is said that the Germans did not attempt to destroy the libraries, although they did try to control them. Sven Dahl was appointed "Rigsbibliotekar" or director of the Royal Library and the University of Copenhagen library. This position also involves certain duties in connection with all research libraries maintained by the state. During the war he gathered a unique collection of Danish "underground material"—200 papers and several hundred books and pamphlets.

In France, in spite of heavy losses, the public libraries "still remain the richest in the world in the value and rarity of their volumes." At Oxford, England, the new Bodleian Library was completed with space for 4,000,000 volumes. This is part of the library extension project costing $1,000,000, three-fifths of which was provided by the Rockefeller Foundation.

About 3,000,000 volumes with rare manuscripts and stage costumes, valued at $10,000,000 were rescued in the spring of 1947 from fire smoldering for many months in a potash mine at Heinboldshausen, Germany. Of the entire collection, hidden by the Nazis, about 50,000 volumes were destroyed by fire.

Dr. Karl Renner, president of Austria, was formerly General-Staatsbibliothekar of the Library of Parliament of Austria, with which he had been associated for 30 years.

STATE AND LOCAL DEVELOPMENTS

While encouraging developments have been accomplished in the extension of library service, it was estimated in 1947 that 35,600,000 persons, mainly in rural areas, or 27 per cent of the people in the U. S., are still without library service. The number of regional and county libraries has increased from 401 in 1939 to 808 in 1946. In library legislation, progress was made in Colorado, Iowa, Indiana, Ohio, and Washington, while new county or regional libraries were established in Missouri, Tennessee, and Vermont. Increases in state aid budgets were reported by Maryland, North and South Carolina, and Ohio, and increased library tax ceilings were granted in Indiana, Minnesota, Mississippi, and Montana. Colorado, Maine, Michigan, New Hampshire, and Oregon passed bills enabling them to accept Federal aid for libraries, in anticipation of the passage by Congress of the Library Demonstration Bill. The A.L.A. Library Extension Board has set a goal of library service to 10,000,000 more people by 1951.

In Illinois, demonstrations of district library service were being conducted in six library regions of the state, made possible by a $300,000 state appropriation, and in the Dallas area in Pennsylvania a rural library project was started at the instigation of the local Rotary Club.

State aid for school library materials for 1946-47 include: Georgia, $130,870; New Jersey, $10,000; North Carolina, $163,914; Virginia, $793,952; and Tennessee, $50,000.

ADULT EDUCATION

Public libraries have recently placed increased emphasis on adult education and a new pattern appears to be emerging. It assumes an integration of adult education activities with all units and aspects of adult library work, especially in the neighborhood agency and the medium-sized library, in place of an earlier pattern which conceived of adult education as a restricted special service attached usually to larger libraries. There has been an expansion of activities to and through existing groups leading to closer coordination of library services and community programs and a larger participation by libraries in the planning of community activities.

The Chicago Public Library reports that it has a collection of 925,000 pages of hand-copied braille, the work of the Johanna Lodge Transcribing Group of Volunteer Workers, who have been doing this for the past 25 years. These volumes are loaned to readers in all parts of the world.

Adult education programs have placed new emphasis on the need for audio-visual materials in the library collection. Approximately 25 public libraries, and several school and university libraries, own and circulate films for group, classroom, or home use. Some libraries lend as many as 1,000 films each month. Many other libraries serve as centers of information about films and as agencies for the procurement of films for groups within the community. During the war, a ceiling projector was developed that would permit bed-ridden patients, unable to hold a book, to read from a microfilm image on the ceiling over their heads. At first these projectors were sold only to veterans and military hospitals. A limited number are now available for civilians and are being used experimentally by a few public libraries. The projectors and the microfilm copies of the books are sold on a non-profit basis.

Phonograph records are becoming widely used by libraries. Starting in a few libraries 20 years ago, records are now collected and used by at least 500 public school and college libraries, some of which loan them for home use.

COLLEGE AND UNIVERSITY LIBRARIES

Increased activity by college and university libraries since 1939 culminated in the appointment in 1947 of the first executive secretary for the Association of College and Reference Libraries, with offices at the American Library Association headquarters.

According to a 1947 survey of the book stock of college libraries, it is estimated that, whereas the total number of volumes in 1,321 college libraries reporting was 71,666,801 volumes, by 1960 it will reach 143,300,000, with an estimated value of $501,600,000. The national college book stock approximately doubles every 20 years. It is estimated that the costs of library buildings now planned total $25,000,000 to $35,000,000, and that a similar amount of additional construction and equipment can be anticipated by 1960.

College and university library statistics for 1945-46, covering enrollment, faculty, book stock, circulation, salaries and income were published in the (July, 1947) *College and Research Libraries.*

At a conference for librarians of 110 member institutions of the American Association of Theological Schools in the United States, Canada, and Puerto Rico, the American Theological Library Association was founded June 23-24, 1947 at Louisville, Ky.

The *Harvard Library Bulletin,* a new 1947 publication in this field, "represents the 82 Harvard libraries, and its content will deal primarily with these libraries, with the results of research based upon their holdings, and with more general library problems in the light of Harvard theory and experience."

Many colleges and university libraries have shown considerable interest in microphotography, and grants such as that given to Oregon State College for 1948 have resulted in considerable research in this field.

There is a definite trend among college and university librarians to cultivate a mutual understanding with their colleagues in learned societies and other professional associations.

LIBRARY TRAINING AND PERSONNEL

The shortage of trained personnel is one of the most serious problems of libraries today. Indicative of the situation is the fact that the A.L.A. Placement Office received 2,232 requests in 1946-47 to fill positions, as compared with 1,653 in 1945-46, while only 401 persons registered for positions and most of them were already employed. While salaries were generally somewhat higher in 1947, a tentative survey by the A.L.A. Board on Personnel Administration revealed that hundreds of professional librarians are not yet paid the recommended minimum of $2,100. A panel discussion on "Salaries—What can we do to improve them?" at the A.L.A. San Francisco Conference (*A.L.A. Bulletin,* August 1947) emphasized this problem.

Increased enrollments, reaching prewar totals, were reported by the 34 accredited library schools in the U. S. The number of students enrolled in 1946-47 was 1,843, as compared with 1,499 in 1945-56. In the two Canadian library schools, 96 were enrolled as compared with 61 in 1946. Except for housing shortages the enrollments would be larger.

The wholesome discontent with education for librarianship continues, and the period of 1939-47 was marked by a reappraisal of library schools by themselves as well as by the entire profession. While changes for the most part were keyed to current demands, library schools kept in mind the necessity of maintaining high standards with a view toward permanent improvement in library education. A basic goal is to determine the general education and professional training needed for various levels and types of library work.

It was estimated in 1944 that 18,000 librarians would be required in the six years following the close of the war. The number of additional professional librarians required from 1947-60 is now estimated at 64,160. Of this number, 4,900 represents the present shortage, 22,760 normal replacements, 36,500 new personnel for planned expansion and 2,000 now in the armed forces or military librarians who may return. The estimated enrollment of 3,000,000 students in colleges and universities by 1960 will require the expansion of library activities in these institutions.

The A.L.A. Board on Personnel Administration has set up a project for the holding of ten personnel institutes and two personnel clinics throughout the country to assist all types of small and medium sized libraries (staff of less than 50) in developing and administering well-rounded personnel programs.

During 1940-46, 208 Europeans applied to the A.L.A. Refugee Librarians Committee for advice and assistance. Of this number, 197 were assisted in securing library positions or library training leading to a position. Their problems are discussed in an article in the (June 15, 1947) *Library Journal.*

GRANTS AND BEQUESTS

Throughout the year, gifts of book collections and money for the purchase of books or construction of buildings have greatly aided libraries. Among the gifts were: a famous collection of 800 early American children's books (1682-1836) to the Free Library of Philadelphia by A. S. W. Rosenbach; $1,509,389 (producing an income of about $38,000 annually) to Columbia University for expanding its collections in American history by Frederic Bancroft; a 500-volume Celtic library of the late Arthur C. L. Brown to the University of Chicago Library by his wife; a library and a children's playground to the San Antonio Public Library by Mansfield Landa in honor of his wife; and a bequest of $55,000 to the Riverside (Calif.) Public Library from Charles Francis March.

Gifts to Yale University library included an extensive collection of materials on the history of the American petroleum industry by T. W. Phillips, Jr., the most complete files of the *New York Weekly Journal* (1733-36) in existence by Frank Altschul, and a 22,000 volume medical library by the late Dr. Arnold C. Klebs of Nyon, Switzerland. A $5,000 bequest was made to the St. Louis Public Library by the widow of Frederick M. Crunden, librarian of the library, 1877-1909, and the Lyle Saxon memorial collection of 500 books, pictures and manuscripts was presented to Tulane University, New Orleans, from the Saxon estate. A five-year grant of $915,000 was made by the Carnegie Foundation for the Advancement of Teaching in 1946 for the improvement of college teaching. The 45 southern institutions included in the program will provide an additional $260,000, and a portion of the total amount will be used to purchase books and in other ways to improve library facilities of the participants.

Another five-year Carnegie Corporation grant of $250,000 to four southern universities—North Carolina, Texas, Tulane, and Vanderbilt—will provide for Latin American study centers.

The Chicago Chemical Library Foundation, organized by the Chicago Section, American Chemical Society, and the Chicago Chemists' Club, is raising a minimum of $100,000 to be expended over ten years for the purchase of scientific literature for the John Crerar Library, Chicago. War memorial bookshelves for public libraries are being sponsored by American Legion Auxiliary units, and many colleges and universities, including the University of California at Los Angeles and the Carnegie Institute of Technology, have received memorial books in honor of their student dead.

FUNDS FOR BUILDINGS

By the will of Herbert F. Hall, a science and technology library, the Linda Hall Library, Kansas City, was made possible by a trust fund of $6,000,000. Its first quarters were opened during the year in the Hall Mansion. The Boston Public Library received a fund which will amount to $3,000,000 from John Deferrari to be used in part for a new wing or building. A $20,000 fund was raised by the Junior Chamber of Commerce for a public library for a residential area near Charleston, S. C., and $10,000 was presented to the Louisiana State Library by John M. Caffery as a nucleus for a public library building in the Parish of St. Mary.

Made possible by several large gifts, the Kresge-Hooker Scientific Library, considered an outstanding one of its kind in the world, was opened at Wayne University, Detroit. The $850,000 Don L. Love Memorial Library, University of Nebraska, Lincoln, was formally opened. It was completed in 1943 but used as barracks for the Army Specialized Training Program. Work was begun on the new $6,000,000 Harvey S. Firestone Memorial Library, Princeton University and the new $790,000 wing of the library of the University of California at Los Angeles.

Bond issues of $2,500,000 at Denver and $1,500,000 at Tacoma will provide for new library buildings.

Many buildings or additions for public, college and university, and special libraries, which were deferred because of the war and shortages of materials, are being constructed.

AMERICAN LIBRARY ASSOCIATION OFFICERS

Officers for the year 1947-48: President, Paul North Rice, New York Public Library; First Vice-President and President-elect, E. W. McDiarmid, University of Minnesota; Second Vice-President, Elizabeth D. Briggs, Cleveland Public Library; and treasurer, Harold F. Brigham, State Library, Indianapolis.

A.L.A. MEMBERSHIP AND OFFICES

An international organization composed of 16,000 librarians, library trustees, and friends of libraries, the Association was organized in 1876 to promote the foundation and improvement of libraries in the United States and Canada. Headquarters are at 50 East Huron Street, Chicago 11, with Carl H. Milam, Executive Secretary. An International Relations Office is maintained in the Library of Congress Annex, Washington 25, D. C. with Frederick Cromwell, director. The Association's National Relations Office is located at 1709 M Street, N. W., Washington 6, D. C., Paul Howard director.

CONFERENCES

Midwinter conferences were held in Chicago during December 1946 and January 1948, while the 66th Annual Conference in San Francisco in June 1947 was attended by 2,600 delegates from the United States, Alaska, Hawaii, and 24 foreign countries. The next conference is scheduled for June 13-19, 1948 at Atlantic City.

ANNUAL AWARDS

Miss Mary E. Frayser, Rockhill, S. C., and Thomas H. McKaig, Hamburg, N. Y., were awarded the annual citations for distinguished service as library trustees.

Carolyn Sherwin Bailey received the 26th annual Newberry Medal for *Miss Hickory,* the outstanding children's book of the preceding year. Leonard Weisgard was awarded the 11th annual Caldecott Medal for the illustrations in the most distinguished picture book, *The Little Island,* by Golden MacDonald.

The first *Letter* Award for an outstanding example of progressive library service was presented to the Enoch Pratt Free Library, Baltimore, for its program of adult education in atomic energy. The *Letter* Award to a librarian "for the humanizing of knowledge" was conferred on Natalie Mayo, head of the children's department, San Francisco Public Library.

Presented every two years to the compiler of the best bibliography in the field of agriculture or related sciences, the 11th Oberly Memorial Award (1945-46) went to Burch Hart Schneider for *Feeds of the World: Their Digestibility and Composition.*

The John Cotton Dana Publicity Awards, sponsored by the *Wilson Library Bulletin* and the A.L.A. Public Relations Committee, were given to the following libraries for effective public relations programs: George Amos Memorial Library, Gillette, Wyo.; Santa Barbara Public Library; South Chicago Branch, Chicago Public Library; Des Moines Public Library; Minneapolis Public Library; Harley School Library, Rochester, N. Y.; Michigan State Library; and St. Louis Public Library.

A.L.A. FINANCES

The Association's endowment is approximately $2,100,000. The total income in 1946-7 was about $682,000. Approximately $103,000 came from membership dues, $140,600 from sales of books and periodical subscriptions, and $73,500 was income on endowment funds. Payment of group retirement annuity premiums amounted to $164,600, and $173,300 is derived from outside sources in the form of grants or payments for specific purposes.

PUBLICATIONS

During the year, in addition to the regular periodicals, *A.L.A. Bulletin, Booklist, Subscription Books Bulletin, College and Research Libraries,* and *Hospital Book Guide,* the A.L.A. Publishing Department issued 29 new or reprinted publications from a total of over 200 projects being considered. Among the 1947 publications were: *Books Published in the United States, 1945,* A.L.A. International Relations Board; *By Way of Introduction,* Grim, ed.; *Civil Service and Libraries,* A.L.A. Subcommittee on Civil Service Relations; *Classification,* Herdman; *History of Libraries in Great Britain and North America,* Predeek; *International, Cultural, Educational and Scientific Exchanges,* Williams and Noble, ed.; *Library Buildings for Library Service,* Fussler, ed.; *The Library in the School* (4th ed.), Fargo; *List of Theological Subject Headings,* Pettee; *Reference Books of 1944-1946,* Winchell; *Subject Guide to U. S. Government Publications,* Hirschberg and Melinat.

Among late 1946 or 1947 books in the library field issued by other publishers are: (1946) *Literary Prizes and Their Winners,* A. J. Richter (Bowker); *Personnel Administration in Libraries,* L. A. Martin, ed. (University of Chicago Press); *Public Administration of Public Library Service in the Knoxville-Knox County Area,* Gerald W. Shaw (University of Tennessee Bureau of Public Administration); *Scientific, Medical and Technical Books Published in the United States of America 1930-1944,* R. R. Hawkins, ed. (Bowker); *Study of Reading and Book-Buying Habits,* H. C. Link and H. A. Hopf (Book Manufacturers' Institute, New York); *Subject Headings,* Julia E. Pettee (Wilson); (1947)—*Catholic Library Practice* (University of Portland Press, Portland); *History and Bibliography of American Newspapers 1690-1820,* Clarence S. Brigham (American Antiquarian Society, Worcester, Mass.); and *Writing for Children,* Erick Berry and Herbert Best (Viking Press).

PERIODICAL PUBLICATIONS

Adult Education Journal
525 West 120th Street, New York City.

American School Board Journal
Bruce Publishing Company, 540 North Milwaukee Street, Milwaukee, Wis.

American Teacher
506 South Wabash Ave., Chicago.

Business Education World
270 Madison Ave., New York City.

Child Study
221 West 57th Street, New York City.

Clearing House
Inor Publishing Company, Inc., 207 Fourth Avenue, New York City.

College and Research Libraries
American Library Association, 520 N. Michigan Ave., Chicago, Ill.

Education
370 Atlantic Ave., Boston.

Education Abstracts
1201 Bluff St., Fulton, Mo.

Educational Administration and Supervision
Warwick and York, Inc., Baltimore, Md.

Educational Method
1201 Sixteenth Street, N.W., Washington, D. C.

Educational Record
744 Jackson Place, Washington, D. C.

Harvard Educational Review
Harvard Graduate School of Education, Cambridge, Mass.

Industrial Arts and Vocational Education
540 N. Milwaukee St., Milwaukee, Wis.

International Journal of Religious Education
203 North Wabash Ave., Chicago.

Journal of Business Education
512 Brooks Building, Wilkesbarre, Pa.

Journal of Education
6 Park Street, Boston.

Journal of Educational Psychology
10 East Centre Street, Baltimore.

Journal of Educational Sociology
32 Washington Place, New York City.

Journal of Engineering Education
Prince and Lemon Sts., Lancaster, Pa.

Journal of Experimental Education
University of Wisconsin, Madison, Wis.

Journal of Geography
3333 Elston Ave., Chicago, Ill.

Journal of Higher Education
Ohio State University, Columbus.

Journal of the National Education Association
1201 Sixteenth Street N.W., Washington, D. C.

Journal of Negro Education
Howard University, Washington, D. C.

Journal of Physical Education
Dayton, Ohio.

Junior College Journal
730 Jackson Place, Washington, D. C.

Library Journal
62 West 45th Street, New York City.

Library Quarterly
5750 Ellis Ave., Chicago.

National Parent-Teacher
600 S. Michigan Blvd., Chicago.

Occupations Vocational Guidance Journal
82 Beaver St., New York City.

Parents' Magazine
52 Vanderbilt Ave., New York City.

Peabody Journal of Education
George Peabody College for Teachers, Nashville, Tenn.

Pitman's Journal
2 West 45th Street, New York City.

Religious Education
59 East Van Buren Street, Chicago.

School Management
52 Vanderbilt Ave., New York City.

School Review
5835 Kimback Ave., Chicago.

School and Society
Science Press, North Queen Street and McGovern Avenue, Lancaster, Pa.

Teachers College Record
Teachers College, Columbia University, New York City.

World Federation News
1201 Sixteenth Street, N.W., Washington, D. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia.

American Assn. for Adult Education, 525 W. 120th St., New York City.

American Council of Education, 744 Jackson Pl., N.W., Washington, D. C.

American Council of Learned Societies, 1219 16th St., N.W., Washington, D. C.

American Federation of Teachers, 506 S. Wabash Ave., Chicago, Ill.

Association of Land Grant Colleges and Universities, University of Kentucky, Lexington, Ky.

Association of Urban Universities, University of Pittsburgh, Pittsburgh, Pa.

Bureau of Educational Reference and Research, University of Michigan, Ann Arbor, Mich.

General Education Board, 49 W. 49th St., New York City.

National Congress of Parents and Teachers, 600 S. Michigan Blvd., Chicago, Ill.

National Council of Education, Teachers College, Columbia University, New York City.

National Education Assn. of the U. S., 1201 16th St., N.W., Washington, D. C.

National Research Council, Division of Educational Relations, 2101 Constitution Ave., N.W., Washington, D. C.

National Society for the Study of Education, 5835 Kimbark Ave., Chicago.

Public Education Assn., 20 W. 40th St., New York City.

INTERNATIONAL

Institute of International Education, 2 W. 45th St., New York City.

International Council for the Education of Exceptional Children, 3 E. 25th St., Baltimore, Md.

International Council of Religious Education, 11 W. 42nd St., New York City.

Pan-American Educational Congress, Universidad de Chile, Cosilla 2543, Santiago, Chile.

TEACHERS

American Federation of Teachers, 506 S. Wabash Ave., Chicago, Ill.

Carnegie Foundation for the Advancement of Teaching, 522 Fifth Ave., New York City.

Educators Assn., Inc., 307 Fifth Ave., New York City.

Teachers Union of the City of New York, 13 Astor Pl., New York City.

SCHOOLS

AMERICAN SCHOOL CITIZENSHIP LEAGUE, 295 Commonwealth Ave., Boston, Mass.

CHILD STUDY ASSN. OF AMERICA, INC., 221 W. 57th St., New York City.

NATIONAL ASSN. OF HIGH SCHOOL SUPERVISORS AND INSPECTORS, State Department of Education, Columbus, Ohio.

NATIONAL ASSN. OF SECONDARY SCHOOL PRINCIPALS, 1201 Sixteenth St., N.W., Washington, D. C.

NATIONAL CONGRESS OF PARENTS AND TEACHERS, 600 South Michigan Boulevard, Chicago, Ill.

NATIONAL KINDERGARTEN ASSN., 8 W. 40th St., New York City.

PROGRESSIVE EDUCATION ASSOCIATION, 289 Fourth Ave., New York City

Y.M.C.A. EDUCATIONAL SECRETARIES ASSN., 55 Hanson Pl., Brooklyn, New York City.

COLLEGES AND UNIVERSITIES

AMERICAN ALUMNI COUNCIL, Michigan State College, East Lansing, Mich.

AMERICAN ASSN. OF COLLEGIATE REGISTRARS, George Peabody College for Teachers, Nashville, Tenn.

AMERICAN ASSN. OF JUNIOR COLLEGES, 1201 Nineteenth Street, Washington, D. C.

AMERICAN ASSN. OF UNIVERSITY PROFESSORS, 1155 16th St., N.W., Washington, D. C.

AMERICAN ASSN. OF UNIVERSITY WOMEN, 1634 I St., N.W., Washington, D. C.

ASSOCIATION OF AMERICAN COLLEGES, 19 W. 44th St., New York City.

ASSOCIATION OF AMERICAN UNIVERSITIES, Yale University, New Haven.

ASSOCIATION OF COLLEGES FOR NEGRO YOUTH, Fisk University, Nashville, Tenn.

ASSOCIATION OF LAND GRANT COLLEGES AND UNIVERSITIES, c/o Experiment Station, Lexington, Ky.

COLLEGE ENTRANCE EXAMINATION Board, 425 W. 117th St., New York City.

NATIONAL ASSN. OF STATE UNIVERSITIES, University of Kansas, Lawrence, Kansas.

NATIONAL UNIVERSITY EXTENSION ASSN., Indiana University, Bloomington, Ind.

NEW ENGLAND ASSN. OF COLLEGES AND SECONDARY SCHOOLS, Tufts College, Medford, Mass.

PHI BETA KAPPA, UNITED CHAPTERS OF, 5 E. 44th St., New York City.

SIGMA PHI SOCIETY, 149 Broadway, New York City.

PROFESSIONAL EDUCATION

AMERICAN ASSN. OF TEACHERS COLLEGES, State Normal School, Oneonta, New York.

AMERICAN EDUCATIONAL RESEARCH ASSOCIATION, Teachers College, Columbia University, New York City.

AMERICAN MEDICAL ASSN., Council on Medical Education and Hospitals, 535 N. Dearborn St., Chicago, Ill.

ASSOCIATION OF AMERICAN LAW SCHOOLS, Ohio State University, Columbus, Ohio.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, 5 S. Wabash Ave., Chicago, Ill.

SECTION OF LEGAL EDUCATION, AMERICAN BAR ASSN., 1140 N. Dearborn St., Chicago, Ill.

SOCIETY FOR THE PROMOTION OF ENGINEERING EDUCATION, University of Pittsburgh, Pittsburgh, Pa.

SPECIAL EDUCATION

AMERICAN ASSOCIATION OF INSTRUCTORS OF THE BLIND, Michigan School for the Blind, Lansing, Mich.

AMERICAN ASSN. TO PROMOTE TEACHING OF SPEECH TO THE DEAF, School for the Deaf, 1537 Thirty-fifth St., N.W., Washington, D. C.

AMERICAN HUMANE EDUCATION SOCIETY, 180 Longwood Ave., Boston, Mass.

AMERICAN PHYSICAL EDUCATION ASSN., 311 Maynard St., Ann Arbor, Mich.

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT, COMMITTEE ON ENGINEERING SCHOOLS, 29 West 39th Street, New York City.

NATIONAL ASSN. OF THE DEAF, 3633 E. Tremont Ave., New York City.

NATIONAL SOCIETY OF CRIPPLED CHILDREN OF U.S.A., Masonic Building, Elyria, O.

RELIGIOUS EDUCATION ASSOCIATION, 59

East Van Buren Street, Chicago, Ill.

VOCATIONAL

AMERICAN ASSN. FOR THE ADVANCEMENT OF AGRICULTURAL TEACHING, Iowa State College, Ames, Ia.

AMERICAN HOME ECONOMICS ASSN., 620 Mills Bldg., Washington, D. C.

AMERICAN VOCATIONAL ASSOCIATION, 1010 Vermont Ave., N.W., Washington, D. C.

NATIONAL VOCATIONAL GUIDANCE ASSN., 82 Beaver Street, New York City.

WORKERS EDUCATIONAL BUREAU OF AMERICA, Machinists Bldg., Washington, D. C.

LIBRARIES

AMERICAN ASSOCIATION OF LAW LIBRARIES, Library of the Supreme Court of the U. S., Washington 25, D. C.

AMERICAN LIBRARY ASSOCIATION, 520 North Michigan Avenue, Chicago, Ill.

ASSOCIATION OF RESEARCH LIBRARIES, The New York Public Library, 476 Fifth Avenue, New York City.

SPECIAL LIBRARIES ASSOCIATION, 31 East 10th Street, New York City.

NOTE: For additional educational societies consult U. S. OFFICE OF EDUCATION, Washington, D. C.

NECROLOGY FOR 1947

ABADIA MENDEZ, MIGUEL, former President of Colombia, 80, May 15.

ABELS, DR. JULES CHARLES, cancer research specialist, 33, June 13.

AGATE, JAMES E., British author and dramatic critic, 69, June 6.

ALBERS, HOMER, dean emeritus of the Boston University Law School, 83, Jan. 9.

ALDRIDGE, RAYMOND E., New York jurist, 58, Jan. 22.

AHMAD KHAN, SIR SHAFA'AT, Indian statesman and educator, 54, July 18.

ANDERSON, DR. EDWIN H., director emeritus of the New York Public Library, 86, April 29.

ANDREWS, DR. MATTHEW P., educator and historian, 67, June 20.

ANGLESEY, SIXTH MARQUESS OF, 61, Feb. 21.

ANSPACHER, DR. LOUIS K., playwright, poet, lecturer, 69, May 10.

ARGUELLO, LEONARDO, former President of Nicaragua, 74, Dec. 15.

ATCHESON, JR., GEORGE C., American diplomat and chairman of the Allied Control Commission in Japan, 50, Aug. 16.

ATWATER, HELEN W., home economist and former editor of *The Journal of Home Economics,* 71, June 26.

BACON, DR. CHARLES S., obstetrician and Chicago leader in medical progress, 90, July 10.

BACON, SIR NICHOLAS H., BT., premier baronet of England, 89, Jan. 1.

BACON, SIR REGINALD, British admiral in charge of the Dover Patrol in the First World War, 83, June 9.

BAINBRIDGE, DR. WILLIAM S., cancer specialist and surgeon, 77, Sept. 22.

BALDRIDGE, H. CLARENCE, former Governor of Idaho, 78, June 7.

BALDWIN OF BEWDLEY, FIRST EARL, former Prime Minister of Great Britain, 80, Dec. 13.

BALDWIN, DR. EDWARD R., tuberculosis authority and honorary president of the Trudeau Sanatorium, 82, May 6.

BALDWIN, HENRY DE FOREST, lawyer and leader in civic reform, 84, May 18.

BARCROFT, SIR JOSEPH, British physiologist, 74, March 21.

BARTHOLOMAE, PHILIP H., playwright, 67, Jan. 5.

BAXTER, BRUCE R., M. E. Bishop of Portland, Ore., 55, June 20.

BEACH, EMMETT L., playwright and novelist, 54, Sept. 3.

BEAL, RALPH R., leader in radio and television research, 59, Jan. 24.

BEAMAN, BRIG. GEN. BARTLETT, former chief of staff of U. S. 8th Air Force Flying Fortress Division, 56, Nov. 14.

BELCHER, GEORGE F. A., British cartoonist, 72, Oct. 3.

BELMONT, PERRY, former Representative in Congress and Minister to Spain, 96, May 25.

BENJAMIN, GEORGE R., engineer of automatics, 73, April 28.

BENLLIURE Y GIL, MARIANO, Spanish sculptor, 85, Nov. 9.

BENNETT OF CALGARY, VISCOUNT (Richard Bedford Bennett), former Prime Minister of Canada, 76, June 26.

BERESFORD, JOHN D., British novelist, 73, Feb. 2.

BERNARD, TRISTAN (Paul), French humorist, novelist, and playwright, 81, Dec. 7.

BERRETA, TOMAS, President of Uruguay, 71, Aug. 2.

BILBO, THEODORE G., U. S. Senator-elect (Miss.), 69, Aug. 21.

BLACK, CHARLES C., former New Jersey Supreme Court Justice, 89, Dec. 23.

BLAKE, EDWARD E., Prohibition leader and national chairman of the Prohibition Party, 72, Sept. 9.

BLOCH, JEAN RICHARD, French author, editor, and Communist leader, 62, March 15.

BLYTHE, SAMUEL G., political journalalist, 79, July 17.

BONNARD, PIERRE, French painter, engraver, and illustrator, 79, Jan. 24.

BOOMER, LUCIUS, hotel leader and director of the Waldorf Astoria in New York, 68, June 26.

BOOTH, FENTON W., retired Chief Justice of the United States Court of Claims, 78, July 26.

Borg, Carl Oscar, Swedish-born artist, 69, May 8.

Bottomley, Roland, British actor, Jan. 6.

Bowater, Sir Frank H., former Lord Mayor of London, 81, Nov. 10.

Boynton, Henry W., author and editor, 78, May 11.

Braham, Lionel, British stage and film actor, 68, Oct. 6.

Brandreth, Courtena, bird, animal, and landscape painter, 56, Nov. 3.

Bratton, John W., writer of popular songs, 80, Feb. 7.

Brauner, Olaf M., portrait painter and art educator, 77, Jan. 3.

Brewster, Ethel H., classical scholar, 61, Aug. 18.

Brock, Sir Osmond de B., British Admiral of the Fleet and Chief of Staff of Lord Beatty, 78, Oct. 14.

Brown, Sir William, British permanent Under Secretary of State for Air, 53, Feb. 11.

Browning, Admiral Sir Montague E., commander of the Fourth Battle Squadron of the British Grand Fleet in the First World War, 84, Nov. 4.

Bruns, Rear Admiral Henry F., naval engineer, 57, Jan. 20.

Bryant, William L., director of the Roger Williams Park Museum, Providence, R. I., 76, June 9.

Buck, Sir Percy C., British organist and educator in music, 76, Oct. 3.

Buffington, Joseph, Federal jurist, 92, Oct. 21.

Bullard, Lieut. Gen. Robert L., First Division commander in the First World War, 86, Sept. 11.

Burgess, William S., naval architect and pioneer airplane designer, 68, March 19.

Burke, Rev. Dr. W. B., Methodist missionary in China, 83, Dec. 19.

Burruss, Dr. Julian A., president emeritus of the Virginia Polytechnic Institute, 70, Jan. 4.

Burton, Sir Pomeroy, American-born British newspaper executive, 79, Oct. 15.

Bute, Fourth Marquess of, British landowner, 65, April 25.

Butensky, Jules M., sculptor, 76, Feb. 26.

Butler, Dr. Nicholas Murray, president emeritus of Columbia University, 85, Dec. 7.

Cadoux, Dr. Cecil J., British Church historian, 64, Aug. 17.

Caithness, Eighteenth Earl of, 84, March 27.

Caldecote, Viscount (Sir Thomas Inskip), former Lord Chief Justice of England, 71, Oct. 11.

Campbell, Luther A., former Chancellor of New Jersey, 75, Dec. 28.

Cameron, Margaret (Mrs. M. A. Kilvert), playwright and novelist, 79, Feb. 4.

Cantwell, Most Rev. John J., R. C. Archbishop of Los Angeles, 72, Oct. 30.

Capart, Prof. Jean, Belgian Egyptologist and director of the Brussels Royal Museum of Art and History, 70, June 16.

Carey, Harry, stage and film actor, 69, Sept. 21.

Carlson, Brig. Gen. Evans F., Marine Corps raid leader in the Second World War, 51, May 27.

Carmine, Rear Admiral George C., former U. S. Coast Guard officer, 81, April 7.

Carpenter, Dr. Ford A., meteorologist and Aeronaut, 79, Nov. 10.

Carrera, Dr. Francisco C., Cuban educator and former dean of the School of Social Science, Havana University, 90, July 5.

Carrington, Col. William J., past president of Kiwanis International, 63, July 24.

Cather, Willa Sibert, novelist, 70, April 24.

Catt, Mrs. Carrie Chapman, pioneer leader in woman suffrage and world peace, 88, March 9.

Cauffman, Stanley H., composer, novelist, and artist, 66, Feb. 11.

Chadwick, Dr. Hector M., British authority on the origins of literature, Jan 2.

Chambliss, Alexander, Chief Justice of the Tennessee Supreme Court, 83, Sept. 30.

Chase, Hal, baseball player, 64, May 18.

Cheney, Dr. Clarence O., former president of the American Psychiatric Association, 60, Nov. 4.

Cheyney, Dr. Edward P., teacher and historian, 86, Feb. 1.

Chilston, Second Viscount, British diplomat, 71, July 25.

Christian X, King of Denmark, 76, April 20.

Churchill, Brig. Gen. Marlborough, U. S. Military Intelligence Director, 68, July 9.

Churchill, Winston, American novelist, 75, March 12.

Clark, Dr. Hubert L., Harvard zoologist, 77, July 31.

Clarke, Oscar D., librarian of the United States Supreme Court, 71, Feb. 22.

Clementi, Sir Cecil, British Colonial administrator, 71, April 5.

Clothier, Morris L., Philadelphia merchant and philanthropist, 79, Sept. 8.

Cochran, John J., former Representative in Congress (Mo.), 66, March 6.

Cohen, Dr. Morris R., philosopher and author, 66, Jan. 28.

Colcord, Lincoln, author of sea stories, 64, Nov. 16.

Colonna, Prince Marcantonio, Prince Assistant to the Papal Throne, 66, March 9.

Coolidge, Marcus A., former U. S. Senator (Mass.), 81, Jan. 23.

Coomaraswamy, Dr. Ananda K., scholar and expert in Far Eastern art, 70, Sept. 9.

Cortesi, Salvatore, Italian journalist, 82, March 3.

Coulton, Dr. George G., British authority on medieval history, 88, March 4.

Craig, Edith (Wardell), British actress, producer, and designer, daughter of Ellen Terry, 77, March 27.

Crane, Frederick E., former Chief Judge of the New York Court of Appeals, 78, Nov. 21.

Crilley, Frank, deep-sea diver and holder of the Congressional Medal of Honor and Navy Cross, 63, Nov. 23.

Croft, First Baron, British imperialist and former Under Secretary for War, 66, Dec. 7.

Crosby, Oscar T., former Assistant Secretary of the Treasury and author, 85, Jan. 2.

Crowninshield, Francis W., magazine editor, society chronicler, and art critic, 75, Dec. 28.

Curley, Most Rev. Michael J., R. C. Archbishop of Washington, and Baltimore, 67, May 16.

Cutler, Dr. Elliot C., Boston surgeon and pioneer in heart and thyroid surgery, 59, Aug. 16.

Dabney, Dr. Richard H., historian and former Dean of Graduate studies, University of Virginia, 87, May 16.

Dark, Sidney, British editor and author, 73, Oct. 11.

Davis, Dr. Jackson, vice president and director of the General Education Board of New York, 64, April 15.

Davis, James J., former U. S. Senator (Pa.) and former Secretary of Labor, 74, Nov. 22.

Dear, Joseph A., former New Jersey jurist and newspaper editor and publisher, 75, July 17.

Debuchi, Kalsuji, former Japanese ambassador at Washington, 69, Aug. 19.

Deegan, William J., former president of Postal Telegraph Inc., 61, Jan. 6.

Denikine, Gen. Anton, former Chief of Staff of the Russian Army of the Czarist regime, 76, Aug. 8.

Dennett, Mary Ware, feminist leader and a founder of the National Birth Control League, 75, July 25.

De Ribes, Auguste Champetier, president of the Council of the French Republic, 64, March 6.

Dessoir, Dr. Max, German philosopher and educator, 80, July 22.

De Steiguer, Rear Admiral Louis R., naval veteran of the First World War, 79, April 19.

Deverell, Field Marshal Sir Cyril, former chief of the Imperial General Staff of the British Army, 72, May 12.

Dew, Walter, former chief inspector of Scotland Yard, 84, Dec. 16.

Digges, Dudley, stage and screen actor, 68, Oct. 24.

Dodd, Charles J., former New York State jurist, 74, July 24.

Donaldson, Walter, popular song writer, 54, July 15.

Donnelly, John, architectural sculptor, 80, July 11.

Doremus, Frank E., former mayor of Detroit and former Representative in Congress (Mich.), 82, Sept. 4.

Dougherty, Paul, marine painter, 69, Jan. 9.

Dowling, Mary T., Executive Secretary of the American Association of Industrial Nurses, Inc., Feb. 13.

Duane, Rev. William J., former president of Fordham University, 79, June 27.

Du Cane, Gen. Sir John, British soldier and former Governor and Commander in Chief of Malta, 81, April 5.

Duesberg, Prof. Jules, Belgian educator and former Minister of Education, 65, July 12.

Duff, Hezekiah N., former national commander of the Veterans of Foreign Wars and former chairman of the Michigan Securities Commission, 71, April 29.

Du Moulin, Right Rev. Frank, former Bishop Coadjutor of Ohio (Episcopal), 72, July 9.

Duncan, Dr. Luther N., president of the Alabama Polytechnic Institute, 72, July 26.

Dunn, Louis W., Rhode Island jurist, 57, March 1.

Du Nouy, Dr. Pierre, French scientist and author of *Biological Time*, 64, Sept. 22.

Dupree, Minnie, actress, 72, May 23.

Durant, William C., automobile pioneer, 85, March 18.

DuShane, Dr. Donald, former president of the National Education Association, 62, March 10.

Dutra, Senhora Carmela, wife of the President of Brazil, 63, Oct. 8.

Dutton, Dr. Emily H., dean emeritus of Sweet Briar College and classical scholar, 77, June 18.

Dzhanashia, Simon, Russian scientist and academician, 47, Nov. 16.

Edison, Mrs. Mina, widow of Thomas A. Edison, 82, Aug. 24.

Elkus, Abram I., New York lawyer and former Ambassador to Turkey, 80, Oct. 15.

Ellenwood, Prof. Frank O., head of the Department of Engineering of Cornell University, 69, Sept. 7.

Elliot, Dr. Edward G., former dean of the College of Princeton University, 73, Dec. 12.

Elliott, Harriet, Dean, Women's College, University of North Carolina, 63, Aug. 6.

Emerson, Jay N., president of Kiwanis International, 67, June 12.

Engel, Edward J., former president of the Atchison, Topeka and Santa Fe Railway, 72, March 30.

Eugene, Prince, Swedish artist and brother of King Gustaf V of Sweden, 82, Aug. 17.

Estrada, Gen. Juan J., former President of Nicaragua, 76, July 11.

Evans, Dr. Curtis A., Milwaukee surgeon and a founder of the American College of Surgeons, 68, May 3.

Fairlie, Dr. John A., educator in political science and author, 74, Jan. 23.

Fallada, Hans (Rudolph Ditzen), German-born novelist, 53, Feb. 6.

Farthing, Right Rev. John C., former Anglican Bishop of Montreal, 85, May 6.

Farnsworth, Prof. Charles H., music and speech educator and author, 87, May 22.

Fawcus, Lt. Gen. Sir Harold B., former director general of the British Red Cross Society, 71, Oct. 24.

Fay, William G., Irish actor-producer and one of the Dublin Abbey Theatre, 75, Oct. 27.

Ferris, David L., former Episcopal Bishop of Rochester (N. Y.), 82, June 9.

Ffoulkes, Charles J., curator of the London Imperial War Museum, 78, April 25.

Fisher, Prof. Irving, educator and economist, 80, April 29.

Fitz Alan of Derwent, First Viscount, former Viceroy of Ireland, 91, May 18.

Fitzgerald, Most Rev. Walter J.,

Roman Catholic Bishop of Alaska, 63, July 19.

Flagg, Ernest, dean of American architects, 90, April 10.

Forbes, George W., former Prime Minister of New Zealand, 78, May 18.

Ford, Henry, pioneer automobile industrialist and founder of mass production methods, 83, April 7.

Forster-Cooper, Sir Clive, director of the British Museum of Natural History, 67, Aug. 23.

Foster, Henry H., dean emeritus of the Law College, University of Nebraska, 70, Feb. 22.

Fraser, Prof. Cecil E., assistant dean of the Harvard Graduate School of Business Administration, 51, Feb. 23.

Fraser, Sir John, Scottish surgeon and principal and Vice Chancellor of the University of Edinburgh, 62, Dec. 1.

Frazier, Lynn J., former U. S. Senator (N. D.), 72, Jan. 11.

Fyffe, Will, Scottish comedian, 62, Dec. 14.

Gardner, Oliver Maxwell, U. S. Ambassador at the Court of St. James, 64, Feb. 6.

Garvin, James L., British journalist and former editor of *The Observer* (London), 79, Jan. 23.

Geiger, Lieut. Gen. Roy S., commander of the U. S. Marine Corps in the Second World War, 61, Jan. 23.

George II, King of the Hellenes, 56, April 1.

Gibbs, Major Gen. George S., Spanish American War veteran, 71, Jan. 9.

Gibson, Sir John W., British bridge and dam engineer, 61, March 19.

Gifford, Charles L., Representative in Congress (Mass.), 76, Aug. 23.

Gleason, Lucile, stage and film actress, 59, May 18.

Goldschmidt, Dr. Victor M., Norwegian geochemist, 59, March 20.

Goldsmith, Alfred F., bookseller and Whitman authority, 66, July 28.

Gomberg, Dr. Moses, former chairman of the Chemistry Department of the University of Michigan, 81, Feb. 12.

Gore, Howard M., former Secretary of Agriculture and former Governor of West Virginia, 69, June 20.

Gosline, William A., president of the Toledo (O.) Museum of Art, 73, Feb. 21.

Gottlieb, Leon A., Jewish novelist and editor, 68, Jan. 13.

Goudy, Frederic W., type designer, 82, May 11.

Gray, Finly H., former representative in Congress (Ind.), 83, May 8.

Green, Grafton, Chief Justice of the Supreme Court of Tennessee, 74, Jan. 27.

Greene, Prof. Evarts B., educator and authority on American Colonial history, 77, June 24.

Greene, Roger Sherman, former director of the China Medical Board and vice director of the Peiping Union Medical College, 65, March 27.

Greer, Sir Harry, British television leader and former M. P., 71, March 20.

Gustaf Adolf, Prince, Heir-presumptive to the throne of Sweden, 40, Jan. 26.

Hale, Dr. William, president of the Medical Society of the State of New York, 60, Jan. 16.

Halliday, John, stage and film actor, 67, Oct. 17.

Hambro, Sir Eric, British banker, 75, Dec. 28.

Hamilton, Gen. Sir Ian S. M., British leader in the Gallipoli campaign of the First World War, 94, Oct. 12.

Hanny, William F., newspaper cartoonist and humorist, 65, Dec. 19.

Harboard, Lieut. Gen. James G., military leader in the First World War, 81, Aug. 20.

Harcourt, George, British painter and president of the Royal Society of Portrait Painters, 78, Oct. 1.

Hare, J. Knowles, illustrator and etcher, 63, Feb. 27.

Harewood, Sixth Earl of, brother-in-law of the King of England and husband of the Princess Royal, 64, May 24.

Harper, Prof. George McLean, Princeton Professor of Literature and Wordsworth authority, 87, July 14.

HARRIS, SIR ALEXANDER, British colonial official and former Governor of Newfoundland, 91, March 26.

HARRIS, PAUL P., founder and president emeritus of Rotary International, 78, Jan. 27.

HAWES, HARRY B., former U. S. Senator (Mo.), 78, July 31.

HEIMAN, DR. MARK, skin specialist and former president of the American Academy of Dermatology, 71, July 2.

HELFENSTEIN, RIGHT REV. DR. EDWARD T., former P. E. Bishop of Maryland, 82, Dec. 22.

HELLER, FRANK (Gunnar Serner), Swedish author, 61, Oct. 15.

HENDERSON, LUCIUS J., former actor, producer, and film director, 86, Feb. 18.

HENSON, REV. DR. HERBERT H., Anglican Bishop of Durham, 83, Sept. 27.

HERBERT, HENRY, British-born Shakespearean actor, 68, Feb. 20.

HERMINE, PRINCESS, widow of former Kaiser Wilhelm II of Germany, 59, Aug. 7.

HETZEL, DR. RALPH H., president of the Pennsylvania State College, 64, Oct. 3.

HICKMAN, DR. EMILY, educator, historian, and world peace-worker, 66, June 12.

HICKOK, DR. RALPH K., former president of the Western College for Women (Oxford, O.), 67, April 24.

HIGGINS, GEN. EDWARD J., former international leader of the Salvation Army, 83, Dec. 14.

HILL, GRACE LIVINGSTON, novelist, 81, Feb. 23.

HODGES, GEORGE H., former Governor of Kansas, 81, Oct. 7.

HODGKINS, FRANCES, New Zealand-born British artist, 77, May 13.

HOGATE, KENNETH C., president of *The Wall Street Journal*, 49, Feb. 11.

HOLLAND, SIR THOMAS H., British geologist and mineralogist, 78, May 17.

HOLLEY, DR. JAMES A., physician and author of *Recollections of a Country Doctor*, 92, April 20.

HOLLIDAY, ROBERT CORTES, author and editor, 66, Jan. 1.

HOMER, MME. LOUISE, American contralto, 76, May 6.

HOPKINS, SIR FREDERICK G., British biochemist and discoverer of vitamins, 86, May 16.

HOUGHTON, REV. WILL. H., president of the Moody Bible Institute of Chicago, 60, June 14.

HOWE, DR. ARTHUR M., former editor of *The Brooklyn Eagle*, 80, Oct. 13.

HOWELL, JR., WILLIAMSON S., U. S. Ambassador to Uruguay, 56, May 22.

HUBBARD, HENRY V., landscape architect; 72, Oct. 6.

HUBERMAN, BRONISLAW, Polish violinist and teacher, 64, June 16.

HUMPHREYS, CECIL, British actor, 64, Nov. 6.

HUNLOKE, SIR PHILIP, British yachtsman, 79, April 2.

HUNTINGTON, PROF. ELLSWORTH, geographer and author, 71, Oct. 17.

HYDE, ARTHUR M., former Secretary of Agriculture and former Governor of Missouri, 70, Oct. 17.

INSULL, MARTIN J., former public utilities leader, 78, May 4.

JAGGARD, CAPT. WILLIAM, Shakespeare scholar and descendant of the publisher of the first folio, 80, April 27.

JAMES, HENRY, son of William and nephew of Henry James, biographer and editor, 68, Dec. 3.

JARAMILLO, DR. ESTEBAN, Colombian financier and statesman, 73, Nov. 22.

JENNINGS, DR. HERBERT S., protozoologist and geneticist, 79, April 14.

JERVEY, BRIG. GEN. JAMES P., aide in the construction of Gatun Locks, Panama Canal, 77, March 12.

JEWELL, EDWARD ALDEN, art critic and lecturer, 59, Oct. 12.

JOB, THOMAS, Welsh-born playwright, 46, July 31.

JODHPUR, MAHARAJAH OF (air Vice Marshal Sir Umaid Singh Bahadur), 43, June 9.

JOHNSON, RIGHT REV. IRVING P., retired Episcopal Bishop of Colorado, 80, Feb. 28.

JOHNSON, DR. TREAT BALDWIN, Yale professor and research leader in organic chemistry, 72, July 28.

Jones, Rev. Dr. M. Ashby, Baptist clergyman and good-will racial leader, 78, Jan. 2.

Jordan, Elizabeth, editor, journalist, author, 79, Feb. 24.

Julleville, Pierre Cardinal de, Archbishop of Rouen, 71, Dec. 10.

Katchadourian, Sarkis, Iranian-born artist, 58, March 3.

Kennet, Lady, sculptress and widow of Capt. Robert F. Scott, polar explorer, July 25.

Keppel, Admiral Sir Colin, British naval officer hero of the Nile campaign of 1898, 84, July 9.

Keppel, Hon. Mrs. George, Edwardian social leader, Sept. 11.

Kern, Howard L., former Attorney General and Acting Governor of Puerto Rico, 61, May 12.

King, Mrs. Caroline B., dietitian and author, 80, Dec. 2.

King, Dr. James E., Buffalo gynecologist and past president of the International College of Surgeons, 71, March 9.

King, Paul B., portrait artist, 80, Nov. 25.

Kitson, Henry H., English-born American sculptor, 82, June 26.

Knight, Howard R., secretary of the International Conference of Social Work and executive secretary of the National Conference of Social Work, 58, Oct. 7.

Kraus, Rene, Austrian-born journalist, author, and public official, 45, July 16.

LaGuardia, Fiorello H., former Mayor of New York, 64, Sept. 20.

Lambert, Dr. Sylvester M., tropical health authority, Jan. 10.

Laqueur, Dr. Ernst, Dutch medical educator who developed the testosterone, Aug. 22.

Larimore, Earle, actor, 48, Oct. 23.

Law, Dr. Frederick M., roentgenologist, 71, Feb. 12.

Lawes, Lewis E., former warden of Sing Sing Prison and authority on penology, 63, April 23.

Lawrence, Susan, first woman member of the London Council and former M. P., 76, Oct. 24.

Lebrun, Mme. Albert, wife of the last President of the Third Republic of France, 69, Oct. 28.

Leclerc, Gen. Jacques-Philippe (Comte Philippe de Hauteclocque), Inspector General of the French Army in North Africa, 45, Nov. 28.

Lee of Fareham, Viscount, British statesman and donor of Chequers as a country home for British Prime Ministers, 78, July 21.

LeGallienne, Richard, poet and novelist, 81, Sept. 14.

Lehman, Philip, investment banker, 85, March 21.

Lelong, Gen. Albert, French military governor of Corsica, May 22.

Leonard, Benny, former world lightweight boxing champion, 51, April 19.

Lerch, Major Gen. Archer L., American Military Governor of South Korea, 53, Sept. 11.

Letts, Ira L., Federal jurist (R. I.), 58, Nov. 24.

Leven and Melville, Thirteenth Earl of, 56, Jan. 15.

Levy, Florence N., art educator, author, and publisher, 77, Nov. 15.

Lewin, Dr. Kurt, German-born psychologist of the Massachusetts Institute of Technology, 57, Feb. 12.

Lewis, Ernest I., former Chairman of the Interstate Commerce Commission, 74, July 1.

Lin, Dr. Ching Jun, president of Fukien Christian University of Foochow, China, 48, Jan. 6.

Lion, Leon M., British actor and producer, 68, March 28.

Lipari, Prof. Angelo, Dante authority and head of the Italian department at Yale University, 60, Nov. 3.

Lloyd, Sir John E., Welsh historian, 86, June 20.

Lofting, Hugh J., juvenile author ("Dr. Dolittle" series), 61, Sept. 26.

Lonergan, Augustine, former U. S. Senator (Conn.), 73, Oct. 18.

Longfellow, Wilbert E., former assistant national director of the American Red Cross Water-Safety Service, 65, March 18.

Lowndes, Mrs. Belloc, British novelist, 79, Nov. 14.

Lubitsch, Ernst, film producer and director, 55, Nov. 30.

Lummis, Dr. Katherine, former dean of Wells College, March 6.

Lytton, Second Earl of, former Viceroy of India, 71, Oct. 25.

Macbeth-Raeburn, Henry, British engraver, 87, Dec. 6.

MacGill, Helen G., former judge of the Juvenile Court at Vancouver, the first woman jurist in Canada, 76, Feb. 27.

Machen, Arthur, British novelist, 84, Dec. 15.

Mackinder, Sir Halford J., British geographer, 86, March 7.

MacLeish, Mrs. Martha H., former president of Rockford (Ill.) College and mother of the poet Archibald MacLeish, 91, Dec. 19.

MacNair, Dr. Harley F., University of Chicago authority on China and the Far East, 55, June 22.

Mahoney, Very Rev. Dr. William J., president of St. John's University (Brooklyn, N. Y.), 51, April 28.

Malisoff, Dr. William M., biochemist and author, 52, Nov. 16.

Manchester, Ninth Duke of, 69, Feb. 9.

Mangan, Thomas J., chancellor emeritus of the New York State Board of Regents, 75, May 19.

Mannheim, Dr. Karl, Hungarian-born sociologist, 53, Jan. 9.

Mansfield, Joseph J., Representative in Congress (Tex.), 86, July 12.

Marcq, Prof. René, Belgian lawyer and former president of the University of Brussels, 65, Dec. 7.

Marlow, George, Belgian poet of British descent, 75, April 10.

Marquet, Albert, French painter, 72, June 14.

Martin, Francis, Presiding Justice, Appellate Division, New York State Supreme Court, 68, June 1.

Martinez Sierra, Gregorio, Spanish playwright and novelist, 66, Oct. 1.

Mast, Dr. Samuel O., Johns Hopkins University zoologist, 74, Feb. 3.

Mather, Prof. Thomas R., chairman, Department of English, Boston University, 57, Aug. 26.

Maurey, Max, French playwright and founder of the Grand Guignol in Paris, 77, Feb. 27.

Maxwell, George L., dean of the School of Administration, University of Denver, 50, Jan. 3.

McCartan, Edward, sculptor, 68, Sept. 20.

McCollum, Earl, president of the *Kansas City* (Mo.) *Star*, 57, Feb. 4.

McCombs, Charles F., chief bibliographer of the New York Public Library, 59, May 19.

McCormick, F. J. (Peter Judge), Irish actor, April 24.

McFeaters, Rear Admiral Charles Paul, U. S. N., veteran of both World Wars, 55, Feb. 16.

McGurk, Jonce I., authority on early American art, 72, Jan. 9.

McKelvey, John J., New York lawyer and authority and writer on the law of evidence, 84, Oct. 19.

McLane, Thomas S., New York business and civic leader and philanthropist, 71, Nov. 18.

McLaughlin, Charles B., New York jurist, 63, Dec. 8.

McLaughlin, Most Rev. Thomas H., R. C. Bishop of Paterson (N. J.) and former president of Seton Hall College, 65, March 16.

McLean, Mrs. Evalyn W., Washington philanthropist and social leader, 61, April 26.

McLintock, Sir William, British accountant, 73, May 8.

McNaugher, Rev. Dr. John, former president of the Pittsburgh-Zenia Theological Seminary and author, 89, Dec. 11.

McNeil, Hermon A., sculptor, 81, Oct. 2.

McRoberts, Brig. Gen. Samuel, industrialist and banker, 78, Sept. 8.

Minor, Mrs. Anne Rogers, former president general of the D. A. R., 83, Oct. 24.

Mitscher, Admiral Marc A., Commander in Chief of the U. S. Atlantic Fleet, 60, Feb. 3.

Monroe, Prof. Paul, educator and former president of Robert College, 78, Dec. 6.

Monsky, Henry, international leader of B'nai B'rith and chairman of the American Jewish Congress, 57, May 2.

Monteleone, Giovanni, Italian historian, 67, Feb. 1.

Montgomery-Massingberd, Sir Archibald, British Field Marshal and former chief of the Imperial General Staff, 75, Oct. 13.

Monzie, Anatole de, French official of the Third Republic and author, 70, Jan. 11.

Moody, Rev. Dr. Paul D., religious leader and former president of Middlebury College, 68, Aug. 18.

Moon, Mrs. Grace Purdie, author of Juveniles, 64, Sept. 7.

Moore, Grace (Mrs. Valentin Parera), singer and film star, 45, Jan. 26.

Moore, John Bassett, authority on international law and a former justice of the Permanent Court of International Arbitration at the Hague, 86, Nov. 12.

Morschauser, Joseph, New York State jurist, 84, Nov. 3.

Moscowitz, Grover M., Federal jurist (N. Y.), 60, March 31.

Mottistone, First Baron, British soldier, author, adventurer, 79, Nov. 7.

Moulton, Rev. Dr. Warren J., New Testament scholar and president emeritus of the Bangor (Me.) Theological Seminary, 81, May 7.

Muller-Ury, Adolph, Swiss-born portrait painter, 83, July 6.

Nagano, Osami, Japanese Fleet Admiral, who gave the order for the Pearl Harbor attack, 65, Jan. 5.

Nash, John H., printer and collector of rare books, 76, May 24.

Nash, Dr. Philip C., president of the University of Toledo, 56, May 6.

Neilson, Dr. Nellie, historian, educator, and first woman of the American Historical Association, 74, May 26.

Nelson, Fourth Earl, great grandnephew of Admiral Lord Nelson, 89, Sept. 30.

Newstead, Prof. Robert, British scientist and archaeologist, 87, Feb. 17.

Nichols, Spencer Van B., author, bibliophile, and former Assistant Secretary of State, 65, June 30.

Nichols, Right Rev. William A., retired Archbishop Coadjutor of the Holy Orthodox Church in America, 68, Feb. 6.

Nicholson, Meredith, novelist and diplomat, 81, Dec. 21.

Nicholson, Sir Sydney H., British musician and organist, 72, May 30.

Nitti, Prof. Frederico, Italian scientist and chief of the chemical and bacteriological service of the Pasteur Institute in Rome, 41, March 2.

Nordhoff, Charles B., novelist and co-author with James Norman Hall of *Mutiny on the Bounty,* 60, April 11.

Ocampo, David Samanez, former President of Peru, 86, July 13.

O'Donnell, Rev. J. Hugh, former president of the University of Notre Dame, 52, June 12.

O'Malley, James, New York State jurist, 73, Dec. 25.

Orczy, Baroness (Mrs. Montague Barstow), Hungarian-born English novelist, creator of the Scarlet Pimpernel, 82, Nov. 12.

Orsini, Prince Domenico, Prince Assistant to the Papal Throne, 79, March 21.

Osbourne, Lloyd, step-son and collaborator of Robert Louis Stevenson, 79, May 22.

Osgood, Dr. Wilfred H., curator emeritus of zoology at the Natural History Museum of Chicago, 71, June 20.

Oskison, John M., author and Indian lore authority, 72, Feb. 25.

Ostrowski, Stanislaw K., Polish sculptor, 66, May 14.

Owen, Most Rev. Derwyn T., Archbishop of Toronto and Church of England Primate of All Canada, 70, April 9.

Owen, Right Rev. Leslie, Bishop of Lincoln (Eng.), 61, March 2.

Owen, Robert L., former U. S. Senator (Okla.), 91, July 19.

Pardo, Dr. José, former President of Peru, 83, Aug. 4.

Parker, Major Gen. Frank, a commander of the First Division in the First World War, 74, March 13.

Paterson, Sir Alexander, British authority on prison reform, 62, Nov. 7.

Patino, Simon I., Bolivian "tin king," 81, April 20.

Penrose, Dr. Stephen B. L., president emeritus of Whitman College (Walla Walla, Wash.), 82, April 29.

Pepper, Dr. William, dean emeritus

of the University of Pennsylvania School of Medicine, 73, Dec. 3.

PERKINS, MAXWELL E., book publishing editor and author's adviser, 62, June 17.

PERRY, RIGHT REV. JAMES DE WOLF, former Presiding Bishop of the Episcopal Church in America, 75, March 20.

PHILLIPS, ETHEL GALVERT, author of books for children, Feb. 6.

PIJPER, WILLEM, Dutch composer, 52, March 19.

PLANCK, DR. MAX, German physicist, originator of the Quantum Theory, and Nobel Prize-winner (1919), 89, Oct. 3.

PLOTZ, DR. HARRY, typhus expert, 55, Jan. 6.

PODELL, DAVID L., New York lawyer and philanthropist, 62, Feb. 1.

POPHAM, SIR HENRY B., British colonial official, 65, April 15.

POTT, REV. DR. FRANCIS L. H., American educator in China and former president of St. John's University in Shanghai, 83, March 7.

POTTER, DR. JOHN M., president of Hobart and William Smith Colleges, 40, Jan. 9.

POUNDS, LEWIS H., former New York State Treasurer and former Borough President of Brooklyn, 87, Dec. 16.

POWELL, JOHN B., American journalist in China, 60, Feb. 28.

POWERSCOURT, EIGHTH VISCOUNT, chairman of the Hospitals' Committee of the Irish Sweepstakes, 66, March 21.

PRECAN, REV. DR. LEOPOLD, R. C. Archbishop of Olmuetz in Moravia, 81, March 2.

PRESTON, MRS. THOMAS J. (Frances Folsom Cleveland), widow of Grover Cleveland, 83, Oct. 29.

PRIEST, DR. GEORGE M., professor emeritus of Germanic Languages, Princeton University, 74, Feb. 18.

PREVITE-ORTON, DR. CHARLES W., British historian and authority in medieval history, 70, March 11.

PRYOR, REAR ADMIRAL JAMES C., U. S. N. retired, former medical aide to President Roosevelt, 76, Sept. 8.

PUDESTER, SIR JOHN C., vice chairman of the Newfoundland Commission Government, 65, April 22.

RACZKIEWICZ, WLADYSLAW, president of the former Polish Government-in-exile, 62, June 6.

RAMUZ, CHARLES FERDINAND, Swiss novelist, 69, May 23.

RAYLEIGH, FOURTH BARON, British scientist and former president of the British Society for the Advancement of Science, 72, Dec. 13.

READ, DR. THOMAS T., mining and metallurgy authority, 67, May 29.

REEVE, BRIG. GEN. CHARLES M., soldier in the Philippines in the Spanish-American War, 99, June 24.

REEVES, VERY REV. JAMES A. W., president of Seton Hall College (R. C.), 55, March 7.

REID, FORREST, Irish novelist and critic, 70, Jan. 5.

REID, OGDEN MILLS, editor of the *New York Herald Tribune* and president of the Herald Tribune Corporation, 64, Jan. 3.

REYNA ANDRADE, JOSÉ MARIA, former chief justice of the Supreme Court and former Provisional President of Guatemala, 87, Aug. 26.

ROBINSON, JOHN WESLEY, former Bishop of the Methodist Church in India and missionary, 81, May 30.

ROBINSON, DR. VICTOR, medical historian, 60, Jan. 8.

ROERICH, PROF. NICHOLAS K., Russian-born scientist, author, artist, archaeologist, and founder of the Roerich Museum (N. Y.), 73, Dec. 15.

ROGERS, JAMES G., architect, 80, Oct. 1.

ROTHSCHILD, BARON HENRI DE, French financier and philanthropist, 75, Oct. 12.

ROWLAND, RICHARD A., pioneer in the motion picture industry, 66, May 12.

ROZWADOWSKI, DR. EUGENIUSZ, Polish diplomat and consul general in New York, 63, April 23.

RUEDIGER, DR. WILLIAM C., former provost and dean of the School of Education, George Washington University, 73, July 4.

RUSHBROOKE, REV. DR. JAMES H., president of the Baptist World Alliance and church historian, 76, Feb. 1.

Russell, Major Gen. John H., former commandant of the U. S. Marine Corps, 74, March 6.

Ryan, Most Rev. James H., R. C. Archbishop of Omaha, 60, Nov. 23.

Sachs, Dr. Hanns, psychoanalyst and pupil and biographer of Freud, 66, Jan. 10.

Salisbury, Fourth Marquess of, British statesman, 85, April 4.

Salotti, Carlo Cardinal, prefect of the Congregation of Rites at the Vatican, 77, Oct. 24.

Sanford, Rear Admiral Homer R., former chief of the U. S. Bureau of Docks and Yards, 81, April 7.

Sanger, George, British circus proprietor, 79, Jan. 31.

Sarkadi, Leo, Hungarian-born playwright, novelist, and artist, 68, March 24.

Satterlee, Herbert L., New York lawyer, civic leader, and philanthropist, 85, July 14.

Saunders, Margaret M., Canadian author (*Beautiful Joe*), 87, Feb. 16.

Sawitzky, William, Russian-born art specialist, 67, Feb. 2.

Schück, Prof. Henrik, Swedish scholar and former president of Upsala University, 91, Oct. 4.

Schultz, Dr. John R., president of Allegheny College, 62, Aug. 11.

Scott, Duncan Campbell, Canadian poet, 85, Dec. 19.

Scott, Prof. John A., classical scholar and author, and authority on Homer, 80, Oct. 26.

Scott, Prof. William B., geologist and paleontologist, 89, March 29.

Scrymgeour, Edwin, British Prohibitionist and former M. P., 80, Feb. 1.

Selfridge, Henry Gordon, American-born British merchant, 89, May 8.

Senn, Rear Admiral Thomas J., former Assistant Chief of Naval Operations, 75, Feb. 11.

Sharp, Major Gen. W. F., former commander of the Bisayan-Mindanao forces in the Philippines in the Second World War, 61, March 30.

Shaw, Dr. Albert, editor and founder of *The Review of Reviews*, 89, June 25.

Shaw, Dr. William E., president of Illinois Wesleyan University, 77, Feb. 22.

Shelley, Dr. Harry R., composer and church organist, 89, Sept. 12.

Shepard, Dr. James E., Negro educator and founder of the North Carolina College for Negroes, 72, Oct. 6.

Shepard, Morgan V. A. (John Martin), author of juveniles, 82, May 16.

Sherman, Maurice S., editor and publisher of *The Hartford Courant*, 74, June 27.

Simpson, Prof. Carnegie, British educator and former Moderator of the General Assembly of the Presbyterian Church, 82, Dec. 22.

Sinnock, John R., chief engraver of the Philadelphia Mint, 59, May 14.

Sladen, Dr. Douglas, British novelist, biographer, poet, and first compiler of what is now *Who's Who*, 91, Feb. 12.

Sloane, Mrs. Elsie N., director and former president of the Maternity Center Association, 61, Aug. 18.

Smart, Borlase, British etcher and painter, 66, Nov. 3.

Smeallie, Rear Admiral John M., First World War Veteran, 61, Nov. 23.

Smith, Harold D., former U. S. Director of the Budget and acting president of the World Bank, 48, Jan. 23.

Smith, June C., Illinois jurist, 70, Feb. 7.

Smith, Rodney (Gipsy), British evangelist, 87, Aug. 4.

Snell, Earl, Governor of Oregon, 52, Oct. 29.

Snow, Jesse B., tunnel and subway engineer, 79, June 16.

Snow, Major Gen. William J., first Chief of Field Artillery, U. S. A., 79, Feb. 27.

Sodero, Cesare, composer and a former conductor of the Metropolitan Opera Company, 61, Dec. 16.

Sondern, Dr. Frederic E., clinical pathologist and former president of the New York State Medical Society, 80, Oct. 10.

Sowell, Rear Admiral Ingram C., naval and combat leader in both World Wars, 59, Dec. 21.

SPAULDING, BRIG. GEN. OLIVER L., military historian, 71, March 27.

SPEER, DR. ROBERT, lay leader in the Presbyterian Church and former moderator of the General Assembly, 80, Nov. 23.

SPENCER, REV. DR. JOHN O., president emeritus of Morgan College (Negro), 89, May 24.

STEVENS, W. BERTRAND, P. E. Bishop of Los Angeles, 62, Aug. 22.

STEWART, REV. DR. JOSEPH W. A., former president of the Rochester Theological Seminary (Colgate-Rochester Divinity School), 95, June 26.

STODDARD, HENRY L., newspaper editor and political authority, 86, Dec. 13.

STOLPER, DR. GUSTAV, German-born economist, legislator, and author, 59, Dec. 27.

STRADBROKE, THIRD EARL OF, former military aide to King Edward VIII and King George V, 85, Dec. 19.

STREET, JULIAN, novelist and essayist, 67, Feb. 19.

STREETER, DR. EDWARD C., medical historian and curator of the collections of the Yale Medical Library, 72, June 17.

STUBBS, SIR REGINALD E., British colonial administrator, 71, Dec. 7.

SULTAN, LIEUT. GEN. DANIEL I., Inspector General of the Army and commander of U. S. forces in Burma and India in the Second World War, 61, Jan. 14.

SUMMERLIN, GEORGE T., diplomat and former Chief of Protocol of the State Department, 74, July 1.

SURLES, MAJOR GEN. ALEXANDER D., director of public relations in the War Department in the Second World War, 61, Dec. 6.

SWENSON, LAURITZ, former U. S. Minister to Norway, Denmark and The Netherlands, 82, Nov. 3.

TAMAYO, DR. JOSÉ L., former President of Ecuador, 88, July 7.

TANGUAY, EVA, vaudeville and musical comedy star, 68, Jan. 11.

TATE, MRS. MAVIS, British feminist leader and former M. P., 54, June 5.

TAUSSIG, VICE ADMIRAL JOSEPH K., U. S. N., veteran of the First World War, 70, Oct. 29.

TELLO, DR. JULIO C., Peruvian archaeologist and anthropologist, 67, June 4.

THOMAS, ALBERT ELLSWORTH, playwright and author, 74, June 18.

THOMSON, SIR WILLIAM, South African educator and textbook author, 90, Aug. 6.

THWAITES, GEN. SIR WILLIAM, British soldier in the First World War, 79, June 22.

TOLAN, JOHN H., former Representative in Congress (Calif.), 70, June 30.

TOLER, SIDNEY, film actor, portrayer of Charlie Chan, Feb. 12.

TOMPKINS, MRS. JEAN BURNET, feminist leader, Feb. 28.

TORIJOS, DR. FABIO L., former Colombian Minister to the United States, 82, Jan. 4.

TOWNS, CHARLES B., expert on drug addiction, 85, Feb. 20.

TREADWAY, ALLEN T., former Representative in Congress (Mass.), 79, Feb. 16.

TRIP, DR. LEONARDUS J. A., former president of the Netherlands Bank and of the Bank for International Settlement, 70, March 5.

TRUMAN, MRS. MARTHA ELLEN, mother of President Truman, 94, July 26.

TUCKER, DR. SAMUEL A., chemical expert and educator, 77, Feb. 23.

TULLY, JIM, novelist, 56, June 22.

TURBAY, DR. GABRIEL, Colombian liberal and former Ambassador to U. S., 46, Nov. 17.

TYGEL, ZELIG, Yiddish author, 56, March 12.

TYRRELL OF AVON, LORD, British diplomat, 80, March 14.

UNDERWOOD, ELMER, photographer and pioneer in the development of news pictures, 87, Aug. 17.

UNGERER, HEIBY W., former president of the United Lutheran Synod of New York, 57, Jan. 23.

VACARESCO, MME. HELENE, Rumanian author and poet, 85, Feb. 17.

VALENTIN, DR. VEIT, German historian, 61, Jan. 12.

Van Brunt, Jessie, artist in stained glass, 84, Feb. 28.

Varenne, Alexandre, former French Governor of Indo-China and Deputy, Feb. 16.

Velloso, Dr. Pedro Leao, Foreign Minister of Brazil and chief of Brazil's UN delegation, 60, Jan. 16.

Victor Emmanuel III, former King of Italy, 78, Dec. 28.

Villeneuve, Rodrigue Cardinal, Archbishop of Quebec, 63, Jan. 17.

Vincent, Dr. Clovis, French scientist and brain surgeon, 68, Nov. 14.

Volpi di Misurata, Count Giuseppi, former Fascist Italian Minister of Finance, 70, Nov. 16.

Volstead, Andrew J., former Representative in Congress (Minn.) and sponsor of the Volstead Prohibition Act, 87, Jan. 20.

Walker, Brig. Gen. Meriwether L., former Governor of Panama Canal Zone, 77, July 29.

Wallace, Dr. Benjamin B., tariff expert and international trade adviser, 64, Jan. 5.

Wallace, Dr. Oates C. S., Baptist clergyman and former chancellor of McMaster University (Hamilton, Ont.), 90, Aug. 29.

Walsh, Arthur, former U. S. Senator (N. J.), 51, Dec. 13.

Walsh, David I., former U. S. Senator (Mass.), 74, June 11.

Warren, Sir Norcot H., former managing director of the Imperial Bank of India, 83, April 23.

Washburn, Ives, writer and book publisher, 59, Feb. 5.

Waterous, Herbert L., basso of grand opera and Gilbert and Sullivan star, 78, Aug. 29.

Watt, Robert J., Labor leader and A. F. L. delegate to the International Labor Organization, 53, July 24.

Wauchope, Gen. Sir Arthur G., former High Commissioner for Palestine, 73, Sept. 14.

Weaver, Dr. Rufus W., Baptist clergyman and former president of Mercer University (Macon, Ga.), 76, Jan. 31.

Webb, Sidney, First Baron Passfield, British Socialist leader and political economist, 88, Oct. 13.

Webster, Benjamin (Ben), English-born stage and film actor, 82, Feb. 26.

Weller, Ovington E., former U. S. Senator (Md.), 84, Jan. 5.

Wells, Richard H., former president of Rotary International, 50, Jan. 6.

White, Dr. William C., pioneer in tuberculosis research, 72, Aug. 11.

Whitehead, Dr. Alfred N., philosopher and mathematician, 86, Dec. 30.

Whiting, Florence S., landscape artist, 59, Feb. 5.

Whitman, Charles S., former Governor of New York, 78, March 29.

Whitmore, Dr. Frank C., dean of the School of Chemistry and Physics at Pennsylvania State College, 59, June 24.

Wilkinson, Ellen, British Minister of Education, 55, Feb. 6.

Williams, Dr. Clement C., former president of Lehigh University, 64, Feb. 20.

Wilson, Carroll A., lawyer, industrialist and bibliophile, 61, June 27.

Winans, Major Gen. Edwin B., Superintendent of the United States Military Academy, 78, Dec. 31.

Winant, John G., former Governor of New Hampshire and former U. S. Ambassador to England, 58, Nov. 3.

Winship, Major Gen. Blanton, former Judge Advocate General, U. S. A., and former Governor of Puerto Rico, 77, Oct. 9.

Wissler, Dr. Clark, curator emeritus Department of Anthropology, American Museum of Natural History, 76, Aug. 25.

Wolber, Joseph G., New Jersey jurist, 64, April 8.

Woodruff, Prof. Lorande L., director of the Osborn Zoological Laboratory at Yale University, 67, June 23.

Woodward, Eugenie L., actress and author, 88, March 29.

Woolley, Dr. Mary E., former president of Mount Holyoke College and world peace leader, 84, Sept. 5.

Woolworth, Charles S., co-founder

of the Woolworth chain stores, 90, Jan. 7.

WORCESTER, DR. DAVID, former president of Hamilton College, 39, June 20.

WRIGHT, SIR ALMROTH, British medical scientist, 85, April 30.

WRIGHT, MAJOR RICHARD R., Philadelphia Negro banker and former president of Georgia State College, 94, July 2.

WYNDHAM, HOWARD, London theatre manager, 82, March 16.

YAW, ELLEN BEACH, soprano concert singer, 77, Sept. 9.

YOUNG, CLEMENT C., former Governor of California, 78, Dec. 25.

ZIEGLER, EDWARD, music critic and assistant manager of the Metropolitan Opera Association, 77, Oct. 25.

ZIVKOVITCH, GEN. PETAR, former Premier of Yugoslavia, 68, Feb. 3.

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